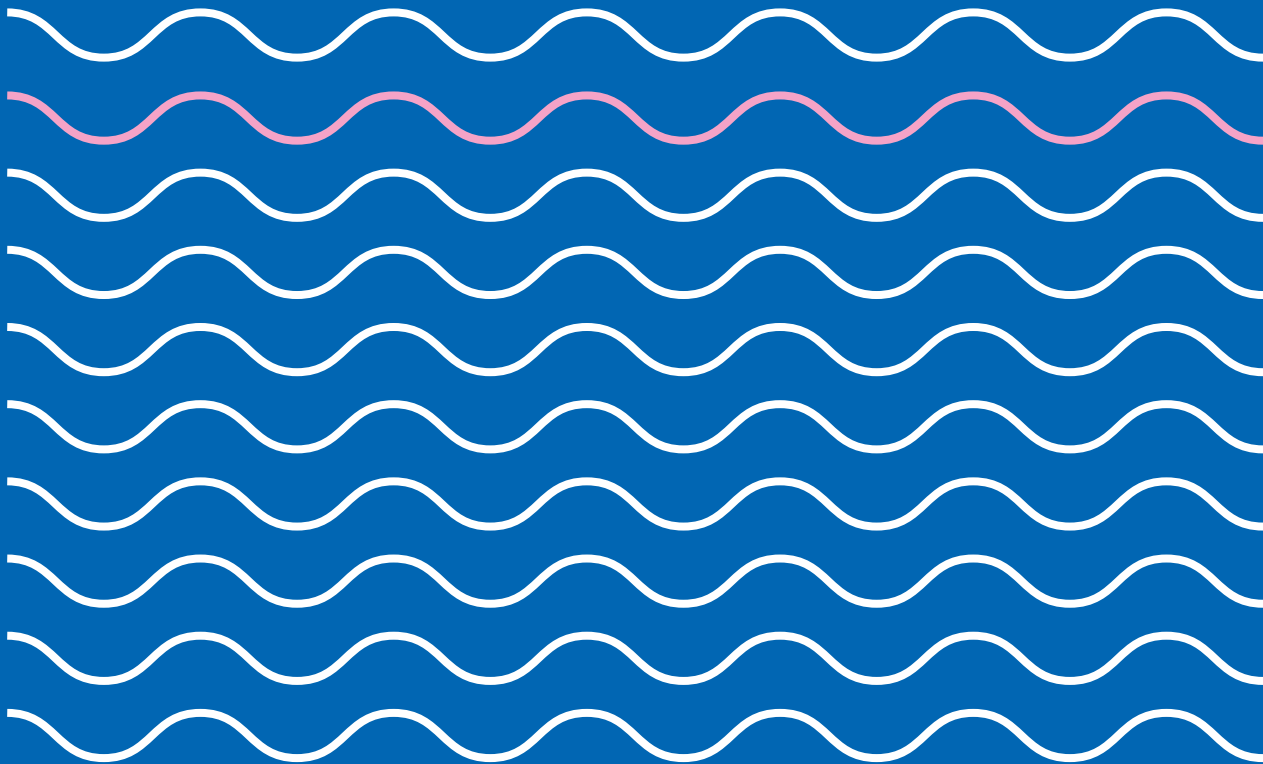


# Suomenlinna enjoy with care



Designing for visitor guidance service  
with behavioural insights

Master of Arts Thesis  
2019



Jinny Kim

Collaborative &  
Industrial Design  
Programme

Aalto University  
School of Arts, Design and Architecture  
Department of Design





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**Master of Arts Thesis**

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## ABSTRACT

Suomenlinna has seen a steady rise in visitor numbers and is one of the most popular visitor destinations in Finland. Despite the benefits of increased tourism to this UNESCO World Heritage Site, it has also brought some additional challenges. Commissioned by the Governing Body of Suomenlinna, this practice-based thesis began with exploring the issue of visitor safety through motivation and signage.

Using service design as the main approach and informed by behavioural insights, early exploration into visitor safety concerns revealed that these concerns were part of a wider systemic issue stemming from visitor behaviours. These behaviours, such as walking in areas that are not recommended by the Governing Body, affect not only the visitors' own safety but also have an effect on the privacy of Suomenlinna residents and conservation efforts. This thesis further identifies that these behaviours result from a combination of the misaligned perceptions visitors have about Suomenlinna and its ineffectual visitor guidance service.

In this thesis, the findings and insights from primary research, which consisted of a workshop, field observations, interviews, and shadowing, formed the basis of discovering the underlying issue and reframing the design brief. Theoretical frameworks in the fields of service design, behavioural studies and tourism were researched during the literature review in order to shed light on the possible cause of the underlying issue and strategies to tackle the issue.

This thesis suggests that by addressing both the conscious and unconscious sides of visitor behaviours, an effective means of shifting behaviours could be achieved. In order to create practical and implementable solutions, the thesis develops a design proposal consisting of an awareness campaign and on-site interventions. The awareness campaign focuses on addressing the conscious minds of visitors with the aim of re-aligning perceptions to be more in line with the historical value of Suomenlinna. Improvements in the visitor guidance interventions on-site focus on the unconscious minds of visitors to address momentary lapses in areas where impulsive behaviours can overtake the judgement of visitors. The design proposal was prototyped and tested in the field, gathering feedback and results. The thesis concludes with a discussion on future steps for pilot implementation, limitations, and future research to ensure meaningful behavioural changes for Suomenlinna.

This thesis demonstrates that service design informed by behavioural insights can be an effective catalyst for guiding the behaviour of visitors to ensure that the integrity of Suomenlinna and its future tourism can coexist.

**KEYWORDS** Suomenlinna, service design, behavioural insights, designing for behavioural change, sustainable tourism

# TABLE OF CONTENTS

<b>ABSTRACT</b>	<b>3</b>
<b>1.0 INTRODUCTION</b>	<b>7</b>
<b>2.0 THESIS OBJECTIVES &amp; PROCESS</b>	<b>9</b>
2.1 Thesis Objectives & Research Question	9
2.2 Overview of Project Process & Research Methods	9
2.3 Thesis Structure	10
<b>3.0 BACKGROUND: RESEARCH SETTING &amp; PROJECT CONTEXT</b>	<b>11</b>
3.1 Suomenlinna	11
3.2 The Governing Body of Suomenlinna	15
3.3 Visitors, Negative Impact, and Previous Studies	17
<b>4.0 METHODS FOR RESEARCH &amp; DESIGN</b>	<b>19</b>
4.1 Problem Exploration Phase	20
4.2 Solution Development Phase	26
4.3 Secondary Research & Literature Review	27
<b>5.0 RESEARCH INSIGHTS &amp; THEORETICAL FRAMEWORKS TO INFORM DESIGN</b>	<b>28</b>
<b>5.1 Research Findings and Insights</b>	<b>28</b>
5.1.1 Visitor Behaviour Patterns & Bounded Rationality	28
5.1.2 Existing Response to Safety Concerns	31
5.1.3 Broader Impacts of Undesired Behaviours	31
5.1.4 Underlying Issue	36
<b>5.2 Theoretical Frameworks</b>	<b>44</b>
5.2.1 Conscious and Unconscious Decisions	44
5.2.2 Designing with Behavioural Insights	45
5.2.3 Tourism Research	47
5.2.4 Service Design Approach	48
5.2.5 Combining Service Design and Behavioural Insights	49
5.2.6 Applying Behavioural Insights Responsibly	50
<b>5.3 Design Criteria and Solution Development</b>	<b>51</b>

<b>6.0</b>	<b>DESIGN PROPOSAL</b>	<b>52</b>
<b>6.1</b>	<b>Addressing the Conscious and Unconscious Mind</b>	<b>52</b>
<b>6.2</b>	<b>Getting the Basics Right: Visual Design, Language, and Location</b>	<b>54</b>
6.2.1	Visual Design	54
6.2.2	Language	56
6.2.3	Location	56
<b>6.3</b>	<b>Proposal Part 1: Awareness Campaign</b>	<b>57</b>
6.3.1	Slogan and Logo	57
6.3.2	Applying Social Norms	59
6.3.3	Location for the Awareness Campaign	63
<b>6.4</b>	<b>Proposal Part 2: On-site Interventions</b>	<b>64</b>
6.4.1	Making the Blue Route More Prominent	64
6.4.2	Redirecting Visitor Flow with a New Sign Type	66
6.4.3	Improving the Residential Area Sign	68
6.4.4	Improving Visitor Safety Signs	69
6.4.5	Modular Signs to Protect Architecture and Vegetation	72
6.4.6	Improving Signs for the Winter Season	74
<b>6.5</b>	<b>Limitations &amp; Opportunities with Behavioural Interventions</b>	<b>76</b>
<b>7.0</b>	<b>PROTOTYPING &amp; FIELD TESTING</b>	<b>77</b>
<b>7.1</b>	<b>Prototyping &amp; Testing: Field Experiments</b>	<b>77</b>
<b>7.2</b>	<b>Planning &amp; Process</b>	<b>79</b>
<b>7.3</b>	<b>Results &amp; Discussions</b>	<b>82</b>
<b>8.0</b>	<b>CONCLUSION</b>	<b>86</b>
<b>8.1</b>	<b>Limitations &amp; Next Steps</b>	<b>86</b>
<b>8.2</b>	<b>Suggestion for Future Research &amp; Design for Suomenlinna</b>	<b>88</b>
<b>8.3</b>	<b>Answering Research Questions</b>	<b>88</b>
<b>8.4</b>	<b>Conclusion</b>	<b>90</b>
<b>8.5</b>	<b>Closing Thoughts: Personal Reflection</b>	<b>91</b>
	<b>ACKNOWLEDGEMENTS</b>	<b>92</b>
	<b>REFERENCES</b>	<b>93</b>
	<b>APPENDICES</b>	<b>100</b>



## 1.0 INTRODUCTION

On July 23rd, 2018, a child fell from a five-meter high wall at the popular sea fortress attraction known as Suomenlinna (Vijamaa, 2018). The child, who was taken to a hospital, was not seriously harmed but the incident raised concerns for the Governing Board of Suomenlinna, the agency who oversees the islands. Safety audits are performed regularly, summer guards patrol the island advising visitors, and the Governing Body does post signs marking safe routes, while indicating which areas are hazardous. But how else could such events be avoided? Suomenlinna spans across eight islands and 80 hectares with a number of cliffs, walls, and rocky terrains that are not advisable for visitors to traverse. On top of that, Suomenlinna is a historical UNESCO World Heritage Site that represents 270 plus years of history and culture. How does an organization balance conservation and the need to maintain the original state of a site with visitor safety?

These questions were part of the genesis of this thesis project. In September 2018, I had taken a course as part of my master's programme at Aalto University. The two-week course, Participatory Methods and Facilitation Skills, was held at Suomenlinna. Milla Öystilä, a tourism specialist at the Governing Body came by to give a brief introduction to the island, and through this course, I was made aware of some of the unique challenges that the Governing Body was facing. In wanting to find a thesis topic to further my experience as a service designer, I sensed that there could be a possible topic through the Governing Body and contacted Milla. I met with Milla and Miia Perkkiö, chief of the Restoration Unit, at Suomenlinna later that year and they presented the aforementioned incident as well as the difficult safety issues that the Governing Body is tackling.

### **From Client Brief to Reframed Design Brief**

The main challenge complicating the matter was that in order to maintain the historical integrity of Suomenlinna, a design solution had to rely on improving visitor safety through motivation and not additional hard measures such as increased fencing. Additionally, the Governing Body wanted to re-examine the various safety and warning signs that guide visitors throughout Suomenlinna which were last updated in 2012. I realized that a service design approach could be used to explore this topic and thus the formation of this thesis project.

During early exploration into the safety concerns presented by the Governing Body, the research revealed that these concerns were part of a wider and more systemic issue that had to be addressed. This thesis project suggests that these safety concerns stem from a set of visitor behaviours that, from the view of the Governing Body, are undesirable and can be harmful to the integrity of Suomenlinna. These behaviours, such as walking in areas that are not recommended by the Governing

Body, affect not only the visitors' own safety but also have an effect on the privacy of Suomenlinna residents and conservation efforts. By using a service design approach and combining insights from behavioural studies, this thesis project investigates these behaviours and connects these behaviours to the result of the misaligned perceptions visitors have about Suomenlinna and its ineffectual visitor guidance service.

To address these issues, the scope of the original brief presented by the Governing Body concerning visitor safety expanded. The design brief was reframed to address not only visitor safety but also to encompass the set of undesirable behaviours that these safety concerns stem from that have a broader negative impact on Suomenlinna.

### **Service Design as the Main Approach**

This thesis views the Governing Body of Suomenlinna as a public service organization. A service is made up of interactions and experiences. It is an intangible system that materializes and is experienced through tangible elements such as people, artifacts and environments (Manzini, 2011; Penin, 2018; Sangiorgi, 2009). Service design explores and shapes these interconnected tangible elements to deliver a service. The Governing Body develops and provides tangible elements at Suomenlinna so visitors can experience the place in a certain way. These elements can include signs, brochures, the tourist information centre, or any other points of interaction visitors encounter.

By using a service design approach, the research revealed that the challenges in visitor management stem from a set of undesirable visitor behaviours. In addition, findings from other disciplines related to behavioural insights were reviewed to draw inspiration from for the design.

### **Service Design and Behavioural Change**

This thesis is a practice-based investigation into understanding how to realign visitors' perceptions when visiting Suomenlinna and how to improve the effectiveness of the visitor guidance service in relation to influencing visitor behaviours for the better. Its aim is to create practical and implementable solutions for the Governing Body of Suomenlinna. It also demonstrates how a government agency can be viewed as a service provider and how by viewing it as such, service design can be an effective catalyst for change and improvement.



## **2.0**

### **THESIS OBJECTIVES & PROCESS**

#### **2.1 Thesis Objectives & Research Question**

The main objective of this thesis is to investigate visitor behaviours at Suomenlinna and use a service design approach to affect behavioural change in a meaningful way.

In order to achieve the main objective, this thesis aims to:

- Understand why visitors behave the way they do
- Identify the influencing factors affecting those behaviours during the visitor journey
- Design ways to alter the influencing factors, leading to behavioural change
- Create a proposal suitable for the internal resources and capabilities of the Governing Body
- Ensure the accountability of the Governing Body of Suomenlinna in using a behavioural approach as a public institution

For this thesis project, I set out to answer the following research questions:

- How can service design be complemented with behavioural science? Which aspects of service design would benefit from behavioural insights?
- How can service design help the Governing Body of Suomenlinna influence visitor behaviours leading to positive change for Suomenlinna?

This thesis is a product of a highly collaborative effort with the Governing Body of Suomenlinna. Since this thesis project was commissioned by the Governing Body, there are two additional goals set out by the client. One was to collect tacit knowledge related to visitor behaviours from the staff of the different units at the Governing Body. The other was to demonstrate how a service design approach, process, and tools can be utilized for the Governing Body

#### **2.2 Overview of Project Process & Research Methods**

The process of this thesis project consisted of two phases: problem exploration and solution development.

After receiving the original brief from the Governing Body of Suomenlinna, the process for this project began with an exploratory research phase. The purpose of the exploratory phase was to investigate the challenges in depth and to gain a wider perspective. This problem exploration phase involved a mix of qualitative design research methods (a workshop, field observations, interviews, and shadowing) as well as a literature review. The findings and insights from this phase formed the basis of discovering the underlying issue and reframing the design brief. Theoretical frameworks were researched during the literature review which shed light on the possible cause of the underlying issue and strategies to tackle the issue. These findings were presented to the client in a mid-review meeting with an expanded and reframed scope for sign-off and to proceed to the next phase of solution development.

Based on the reframed design brief and design criteria established at the end of the first phase, ideas for service interventions were developed. In this solution development phase, the goal was to design a solution that would lead to positive behavioural changes by realigning visitor perceptions while preventing the root undesired behaviours that negatively impact visitor safety, resident privacy, and conservation. It was important that the design proposal still updated the existing signage and did not limit the enjoyment of the visitors. Additionally, the resources of the Governing Body and their ability to execute an implementable solution had to be considered. Although no limitations were explicitly set by the Governing Body, I had to keep in mind that the original brief presented was primarily to improve visitor safety through signage and motivation. Therefore, the original brief implied as to the scale and type of possible solutions.

In addition to the findings and insights from the first phase, solution development was further informed by additional research (interviews, feedback sessions, prototyping and field testing) and a literature review. The findings from the literature review aided in informing numerous design decisions. In this phase, continuous input from the Governing Body was instrumental in providing feedback to arrive at a final proposal.

Throughout the project, various mapping techniques were used to analyze and synthesize findings and insights. Mapping was used to understand and make sense of the networked system of actors, flows, relationships, sequences, and influences, and was crucial during the whole process of research and design.

## **2.3 Thesis Structure**

This thesis consists of eight chapters. The first chapter is an introduction to the thesis project to orient the reader. It briefly describes the origin of the thesis and the service design approach that is used throughout the project. It is followed by a chapter outlining the objectives of the thesis, including goals and research questions to be answered. Chapter three is a more thorough discussion of the context, with background information regarding Suomenlinna and the Governing Body, as well as an introduction to the visitors of Suomenlinna and how they impact the site. In chapter four, the methods used for research and design processes are provided.

In chapter five, findings and insights from research are discussed. These findings and insights are based on the field research and data I collected as well as the literature reviews. The theoretical frameworks on which these insights are built upon including a brief introduction to the fields in which they come from are included in this section. This chapter then ends with a description of the design criteria that guided the process of solution development.

Chapter six presents the design proposal that was formed as a solution based on the research and insights of the previous chapter. It begins with an overview of why it addresses the design problem and then an overall breakdown on the approach. This is followed by a detailed description on each element of the design proposal and the strategy that is used. Chapter seven discusses the prototyping and field testing process of the design proposal, with a breakdown of the testing methodology and results. Finally, the thesis concludes in chapter eight with closing thoughts. In it, is included limitations of the project and the implications of the thesis for both the Governing Body and service design. Followed by a recap of the project and a personal reflection.

### 3.0

## BACKGROUND: RESEARCH SETTING & PROJECT CONTEXT

### 3.1 Suomenlinna

#### World Heritage Site and Tourism

Suomenlinna is a historical island-based fortress located off the south coast of Helsinki. It is one of the most popular tourist destinations in Finland. At 80 hectares in total, the fortress is mainly built across five islands, that are connected by a series of bridges and sandbanks.

Suomenlinna is a well-preserved example of 18th century military architecture. Built over several decades, the architectural style spans over three realms that ruled the land, Swedish, Russian, and Finnish. Suomenlinna is protected by Finnish law and was designated as a World Heritage Site by UNESCO in 1991. The World Heritage Sites are places that are deemed worthy of preservation for future generations for their significant cultural and historical value. This designation also increases its profile as a notable place for tourists to visit.

The main mode of transportation to access Suomenlinna is via a public ferry operated by the local authority Helsinki Seudun Liikenne (Helsinki Region Transport), otherwise known as HSL. The year-round ferry service runs from morning to night, one to four times every hour depending on the season.

The ferry to Suomenlinna departs from Kauppatori (The Market Square) and takes approximately 15 minutes. Kauppatori is located in the main central area of Helsinki. Kauppatori is next to several landmarks of Helsinki such as the Helsinki Cathedral, the Senate Square, and the Old Market Hall. This close proximity and easy access contributes in part to Suomenlinna being popular amongst tourists.



**Figure 1-2**  
HSL ferry terminal at Kauppatori  
and the ferry on its way  
to Suomenlinna.



**Figure 3**  
Tourism marketing by the city of  
Helsinki. Suomenlinna is one of  
the six must see attractions.





**Figure 4-5** Aerial view of Suomenlinna in the summer and winter.





Figure 6-7 View from the Kustaanmiekka rampart walk at Suomenlinna in May and January.

## The Landscape

The landscape of Suomenlinna is an integrated mix of nature and built structures. The fortification is made up of tall walls of stones and mounds of soil covered with grass. These grassed ramparts are built along the edges of the island and can become quite high, providing an excellent view of the sea and Helsinki. Along the fortification walls of Suomenlinna are decommissioned cannons. Inside the stone walls themselves, lay a series of tunnels. Scattered across the fortification are also small hills built of stone, soil, and grass that contain bunkers or other building structures. Most of these walls, tunnels, and bunkers are open to the public and can be explored with no supervision.

Even though the fortress was originally built on rocky terrain, today Suomenlinna is a sanctuary for many species of plants and animals. As the seasons change, the landscape can change quite radically. From lush flowers, plants and birds in the summer to being surrounded by ice and snow in the winter. This can make it especially tricky for visitors as not all areas of the island have regular winter maintenance and the rocky areas of the island can become more difficult to navigate.

## A Neighbourhood of Helsinki

Suomenlinna however, is not just a decommissioned military base. It's an active living community. In 1973, Suomenlinna was handed over for civilian use and the Governing Body of Suomenlinna was established to oversee the island. Since then, most of the original 200 buildings have been re-purposed as spaces to live or work. Most of the buildings are owned by the state, and the properties are leased to the residents and business owners. The Governing Body facilitates and manages this process. Currently there are approximately 800 residents (City of Helsinki, 2018). Some of which work on the island, while others commute to the mainland. Suomenlinna is a formal district of Helsinki with public infrastructures such as a school, daycare, library, recreational fields, church and fire station. Also available for residents and visitors to the island are cafes, restaurants, museums, an outdoor theatre and grocery store.

Suomenlinna is considered to be a car-free neighbourhood. There is occasional car access, but they are limited to vehicles for maintenance work, construction, special events, or resident use. There is no public transportation on the island itself. Residents and Governing Body employees usually travel either on foot or on bicycle to get around the island.

Suomenlinna is also home to the Naval Academy and a minimum-security open prison. Under agreement with the Ministry of Justice, the prison is an important source of labour forces to maintain and restore Suomenlinna while providing a place of rehabilitation and transition for inmates. These two places are not completely segregated or hidden from visitors. The facilities are well-integrated with residential buildings which can cause visitors to the island to sometimes inadvertently enter these premises without realization.



**Figure 8-9** Residential buildings and visitors touring a fortress wall.



**Figure 10-11** The Suomenlinna open prison.



**Figure 12** The Naval Academy yard.



## 3.2 The Governing Body of Suomenlinna

### Organization Overview

The Governing Body of Suomenlinna is responsible for overseeing Suomenlinna. As a state agency, the Governing Body is responsible for managing conservation and tourism, as well as addressing the needs of the residents and businesses.

The operation of the Governing Body is abided by both Finnish and international legislations. As a UNESCO World Heritage Site, the host country ensures the authenticity and integrity of the site by setting up necessary laws, policies, and actions at the national and municipal levels.

The Governing Body performs many duties in order to preserve and foster the cultural and historical value of Suomenlinna. As the site manager of a World Heritage Site, the Governing Body promotes and educates the public of the value of Suomenlinna. This duty is achieved by developing cultural and sustainable tourism. The built structures and landscape are continuously surveyed, maintained and restored. The funding for these repairs comes mostly from the rental income of state-owned properties on the island including apartments, workspaces and other facilities. The Governing Body manages this lease process and addresses the needs of the residents and business owners.

These duties are carried out by four units: Restoration, Maintenance, World Heritage Service, and Administration and Legal Service. At the agency, approximately 90 employees are working full-time in addition to seasonal workers and volunteers. The employees come from various disciplines, mainly from the fields of architecture, landscaping and tourism.

The Governing Body is under the jurisdiction of the Ministry of Culture and Education. However, for matters concerning conservation, the Governing Body reports to the Finnish Heritage Agency. The Governing Body also liaises with many stakeholder agencies across municipal and national levels, including the City of Helsinki, the Ministry of Justice, and the Ministry of Defence.



**Figure 13-15**  
The office of the Governing Body of Suomenlinna.  
Workers doing conservation work and landscaping.

## **Services for Visitors**

The area of focus for this thesis project is the services that the Governing Body provides for the visitors of Suomenlinna. As the site manager of a World Heritage Site, one of their responsibilities is in provision and presentation of information regarding Suomenlinna. As part of this, the Governing Body provides visitor guidance services. These services include the various signs posted for wayfinding or displaying relevant historical information at key sights spread across the island, as well as the tourist information centre which is directly operated and staffed by the Governing Body. These services also include supplying maps and brochure materials and relaying information from other service providers such as museums, shops, cafes and restaurants. This information is made available to visitors via the official Suomenlinna website and social media channels. All these visitor guidance services are presented by the Governing Body throughout the visitor journey at various touchpoints. These touchpoints can generally be categorized as points of contact leading up to the visit to the island as well as on site, physical touchpoints.

Whenever possible, the Governing Body coordinates with various tour operators, guides, and other tourism information providers in order to ensure that Suomenlinna is represented properly.

In addition, as a public institution, the Governing Body takes on the responsibility of ensuring the safety of visitors and residents of Suomenlinna. As part of the visitor guidance service, they provide safety warnings and attention signs, in addition to some fencing.

Planning and installing signage and fences are not a simple and straightforward process for Suomenlinna. As a protected heritage site, there is a delicate balancing act between several needs: the need to preserve historical authenticity to maintain the original landscape or scenic views without obstructions, and the need to provide necessary services and accessibility for visitors. Additional fencing for example, would prevent visitors from damaging sensitive areas and aid in creating a safer environment but it would also disturb the original historical integrity of the site.

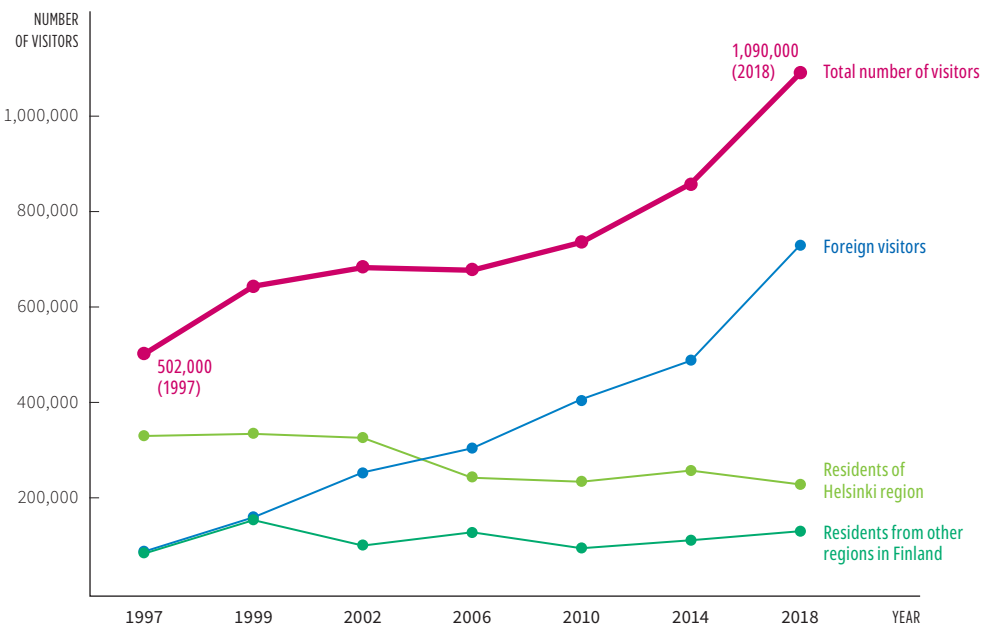


### 3.3 Visitors, Negative Impact, and Previous Studies

#### Two Main Visitor Types

In 2015, the Governing Body published a report titled: “A Sustainable Tourism Strategy for Suomenlinna.” According to the report as well as the results from the visitor surveys conducted in 2014 and 2018, there are two main types of visitors to Suomenlinna that can be divided based on the purpose of their visit (Lempiäinen & Ruoho, 2015; Heikkilä, 2018). Those who are visiting for outdoor recreation which are mainly residents of the Helsinki region, and those who are visiting for sightseeing as tourists of which are increasingly from outside of Finland.

The overall visitor numbers have been growing steadily, a trend that has been perceived to be positive by the Governing Body (GBS, 2015). Tourism has a positive impact on the local economy, a primary factor in why the City of Helsinki and Finland have been promoting tourism. For Suomenlinna, growing visitor numbers creates more jobs and increases services at the island. Business has increased creating more cafes and restaurants. As a result, the public ferry must run more often, which also makes it more convenient for the residents of Suomenlinna.



**Figure 16**  
Number of visitors per year.  
Based on data from the Governing Body  
(GBS 2015; Heikkilä 2018).

## Increasing Visitor Number and the Negative Impact

However, based on findings from the research of this thesis project as well as the reports published by the Governing Body, this growth is not without consequences (GBS 2012; 2014; 2015). Residents have been complaining that the island itself is becoming more crowded and ferry rides are increasingly busy. The increase in tourism has also resulted in visitors wandering into the residential areas of Suomenlinna. This is normally not an issue, but visitors often mistake homes as part of a tourist attraction. Visitors have been reportedly entering private property and taking photos, raising privacy concerns and becoming an overall nuisance. With the increased foot traffic, environmental degradation has also been concerning. Visitors often take paths off the main trails, forming new footpaths. This is damaging to sensitive vegetation and increases soil erosion. Additionally, these paths are sometimes formed over grassy mounds which may appear as a natural hill to visitors but actually houses sensitive structural architecture inside.

To tackle some of these issues, the Governing Body has previously undertaken several studies. These studies examined the issues using approaches from the fields of architecture, tourism, wayfinding, and risk management (see Table 1). However, neither a service design nor behavioural science approach has been utilized in depth to date. This thesis project aims to fill in the gaps using these approaches by viewing the Governing Body as a service provider and connecting the duties of the agency as a series of interconnected services. By doing so a wider perspective is formed, creating a more holistic understanding of these challenges.

**Table 1** List of previous studies reviewed for this thesis project.

NAME OF THE STUDY	YEAR	AUTHOR	MAIN APPROACH / FIELD OF STUDY
Warning and attention signage	2011-2012	Governing Body	Signage & graphic design
At fort: Self-analysis report	2012	Governing Body	Architecture
Guidance master plan	2014	External consultant	Architecture, wayfinding & graphic design (incl. participatory workshop)
Management plan: Fortress of Suomenlinna – UNESCO World Heritage Site	2014	Governing Body	Strategy planning, management
A sustainable tourism strategy for Suomenlinna	2015	Governing Body	Tourism, strategy planning (incl. participatory workshop)
Interpretation plan	2017	Governing Body	Tourism, interpretation strategy, signage
Visitor safety in Suomenlinna: Current state analysis and suggestions for future development	2018	Bachelor's thesis, Laurea University	Risk management
Suomenlinna visitor survey 2014	2015	Bachelor's thesis, Haaga-Helia University of Applied Sciences	Tourism
Suomenlinna visitor survey 2018	2018	Finnish Association of World Heritage Sites & Governing Body	Tourism
Tourist information centre improvements	2019	External consultant	Interior architecture, exhibition design

## **4.0 METHODS FOR RESEARCH & DESIGN**

### **How I Selected the Methods**

This thesis is practice-based and the main outcome is an implementable design solution for the Governing Body of Suomenlinna. I chose to do a practice-based thesis to demonstrate and expand my ability as a service designer. Thus, methods for research and design in this project have been selected with these objectives in mind.

The methods and techniques I used for primary research are commonly employed by service design practitioners (Nesta & IDEO, 2017; Penin, 2018; Stickdorn et al., 2018). During the problem exploration phase, qualitative methods such as a workshop, observations, interviews, and shadowing were used. During the solution development phase, I conducted additional interviews and feedback sessions with the Governing Body staff.

A service design project supported by the aforementioned qualitative methods can have an effect as a “silo breaker” (Stickdorn et al., 2018, p. 13). A service design approach is holistic, people-centred and inter-disciplinary (Penin, 2018). For this project, these methods were selected to gain a holistic understanding of the challenges facing the Governing Body and Suomenlinna. It meant encompassing different disciplines and units within the Governing Body as well as different people who produce, use, and is affected by the service.

In addition to the mix of the primary research methods to gain insights from different perspectives, I used secondary research and literature reviews to develop these insights further throughout the project. Informed by the secondary research and relevant theories, I attempted to look beyond what people said in interviews or showed me during the primary research. As suggested by Penin (2018) “In service design, it can be productive to draw from outside scholarship and other fields of expertise in order to support, challenge, or enhance the insights we gather and ideas we produce” (p. 208).

### **How I Collected and Analyzed Data**

During the workshop and in-depth interviews, the data was collected primarily through audio recordings. A voice recorder was used with the participant’s permission. These recordings were then transcribed and analyzed. For observations and ad-hoc interviews done in the field, I took notes, photos and some videos to document visitor behaviours and environments. Some data was synthesized in small batches after each session and some were processed in large volumes after milestones. The mix of “just-in-time” and “dedicated” synthesis processes allows some flexibility and agility to move between a highly exploratory research and a more in-depth analysis (Chipchase, 2017, p. 378).

When analyzing and synthesizing data, I used various mapping techniques as necessary to parse through data and insights collected. Mapping was done organically and included a hybrid of:



**Figure 17** Research data mapping.

- Mind mapping: A general graphical way of representing data to structure information
- Clustering and sorting: Visually grouping and differentiating data, facts, and observations
- Systems mapping: Graphically depicting the links between the different elements of a system
- Visitor journey mapping: Visually illustrating the stages of a customer experience in a service
- Iterating: Repeating these techniques to create multiple outcomes

## 4.1 Problem Exploration Phase

### Kick-off Workshop with the Governing Body of Suomenlinna Staff

I organized a kick-off workshop with the staff of the Governing Body of Suomenlinna at the end of November 2018. The aim of the 90-minute workshop was to explore and consolidate various insights, assumptions, opportunities, challenges, and concerns from the staff. The focus of the workshop remained broad to capture a general overview. This was the first workshop session at the Governing Body for this project, and it was also an opportunity to introduce myself and the project. Getting to know the staff and starting to build trust was important to ensure that the relationship would foster continuous cooperation and input from the staff through-out the project.

Eight employees suggested by the Governing Body were invited to participate in the workshop to represent the Governing Body as a whole. The eight participants represented all four units of the Governing Body with various specialties, roles and responsibilities. These included tourism, communication, marketing, architecture, and landscaping. The group represented a balance of employees from both those working in the office and those who worked mainly outdoors. The group also included newer employees and employees with more seniority.

Three themes were used to trigger the ideation process and discussions. These themes were selected based off the original brief presented by the Governing Body regarding safety concerns and how visitor safety could be improved through signage and visitor motivation. The three themes were:

- Visitor Safety
- Warnings & Attention Signs
- Motivate / Encourage Heritage Preservation



**Figure 18** Kick-off workshop.

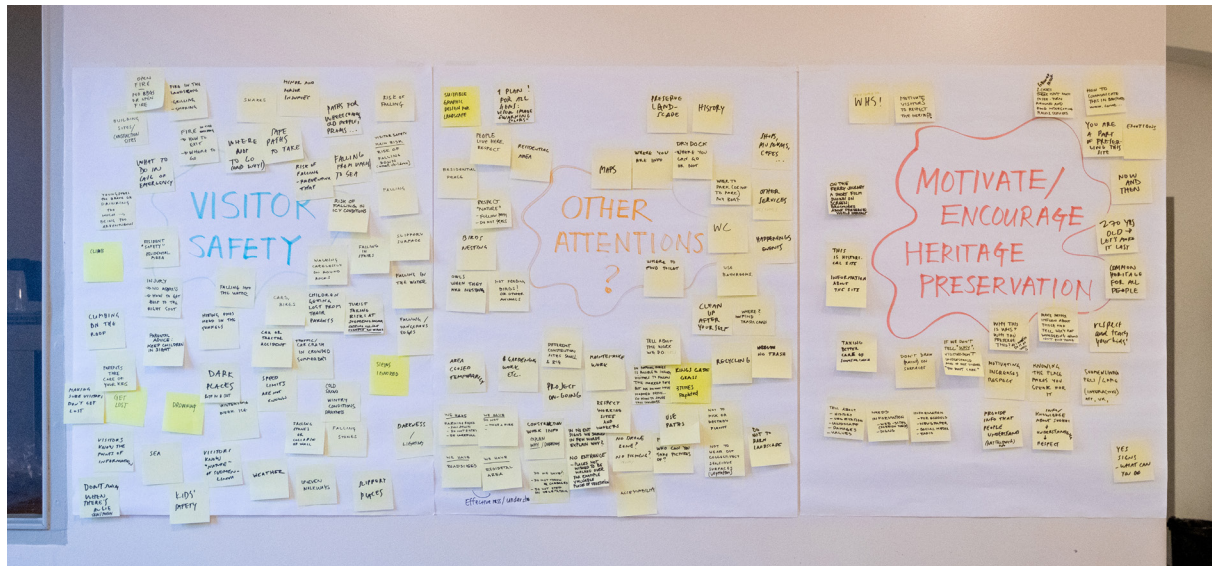


Figure 19 Themes discussed at the kick-off workshop.

### In-depth Interviews: Staff as Experts

After the kick-off workshop, a total of five interview sessions were conducted between December 2018 and January 2019. The aim of these sessions was to gain a deeper understanding of the issues that were touched upon in the workshop and to expand upon those issues. Most of the participants for these interview sessions were present during the kick-off workshop. The sole participant who did not previously partake in the workshop was a member of staff who is also a long-term resident of Suomenlinna and helped gain a perspective from a resident's view.

Table 2 List of in-depth interview sessions with the Governing Body staff.

No.	TYPE	STAFF BACKGROUND	DURATION	NOTE
1	2 people	Gardeners	2-hour	incl. site tour
2	Individual	Architectural staff	0.5-hour	
3	Individual	Staff, also a long-term resident of Suomenlinna	0.5-hour	
4	Individual	Staff, also a long-term resident of Suomenlinna	1-hour	incl. site tour
5	3 people	Staff from tourism, marketing, and architecture	0.5-hour	incl. site tour

Each interview lasted between half an hour to two hours. Some were conducted individually in the office and some were in the field. These were semi-structured, exploratory interviews. A general guide for the interview was prepared with a set of starting questions and focus areas to be discussed. This type of highly exploratory interviews can be more beneficial because it allows for a broader and deeper scope of exploration (Chipchase, 2017).

The interviews began with getting an overall better understanding of the staff's work as it relates to visitor safety and any negative impact of increased visitors. The scope of these questions were then broadened to encompass any challenges and knowledge that related to visitors in general to glean any possible additional information that could be relevant. Questioning remained open ended to gather as much general data as possible to contextualize the issue of visitor safety concerns in relation to Suomenlinna and the Governing Body as a whole.

The staff at the Governing Body of Suomenlinna have a lot of first-hand experience and knowledge regarding visitor behaviours. The main office is located in the heart of Suomenlinna. The Governing Body staff become quite familiar with visitor behaviour patterns often through observations or brief interactions during commutes, or simply observing visitors from the office windows. Other staff members such as gardeners and caretakers, who work mainly out in the field, interact not only with the visitors but also become familiar with the residents of Suomenlinna. Some staff members also have experience living in Suomenlinna as residents, either currently or in the past.

For this project, staff from different units were interviewed as experts. From the outset of the project, the client acknowledged that there is a lot of tacit knowledge among the staff and hoped that this project served as an opportunity to collect the knowledge.

### Field Observations & Ad-hoc Interviews: Visitors

During the Problem Exploration Phase, there were five outdoor sessions in which I observed visitor behaviours at Suomenlinna. In these field sessions, my goal was to gather qualitative data: observing visitor movement patterns, notable behaviours and actions, and general demographics such as age, gender, and background. Each session lasted between one to three hours. The sessions were spread out between November 2018 and February 2019 to account for the changes in weather, as weather conditions can affect the behaviour and number of visitors.

Suomenlinna is made up of several islands and it is quite difficult to cover all areas on foot. The initial client brief didn't specify areas to design for, so early observation sessions were mostly unstructured and exploratory. As the project progressed, specific areas of interest emerged based on input from the Governing Body staff, residents, as well as the research findings.

I made sure to observe several different types of visitors including those travelling alone, as a couple, groups of family or friends, and packaged tour groups. Finnish visitors as well as international visitors were observed. I attempted to make observations from a far enough distance to not affect visitors or make them feel overly conscious about their actions. It was important as a designer conducting research that the behaviours being observed were not affected as some of the behavioural patterns could be done unconsciously or would normally be considered socially frowned upon. I wanted to observe what areas and paths visitors are naturally drawn to and what their activities were. Some ad-hoc interviews were conducted when necessary to inquire further on a visitor's intentions or expectations.



**Figure 20-22**  
Interviewing during a site tour of the ramparts. The work shed where tools and the safety signs are stored.



In addition to the sessions previously mentioned, observations were also expanded to the ferry terminals of Suomenlinna, as most visitors use the ferry to visit the islands. Observations were made at both the arriving and departing terminals, as well as inside the ferry itself. These areas are also important to consider as they are an integral part of the visitor journey and the Suomenlinna experience.

**Shadowing Session at the Tourist Information Centre**

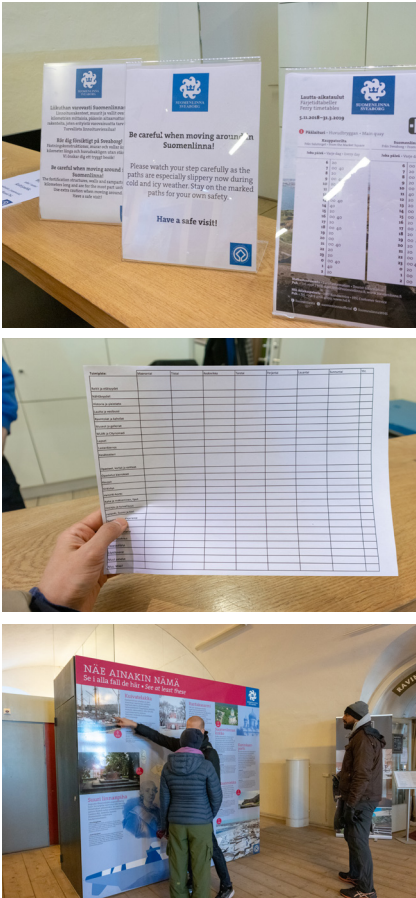
In mid-January, a shadowing session was conducted at the tourist information centre for two and a half hours. The goal of this session was to observe staff interaction with visitors and gather further insight from a visitor perspective. A shadowing session was selected as a research method based on the kick-off workshop finding that the information centre was a touchpoint in which visitors would often express issues during their visit. Additionally, this method helped to triangulate findings gathered from previous interviews and to not rely solely on interviews that could be biased or distorted. To support the shadowing, with the permission of the Governing Body, I interviewed the staff on duty that day as well as the visitors who engaged with various services at the information centre.

**Limitations & Opportunities**

The research for this thesis project seeks to better understand the behaviour of visitors. Many of these visitors are foreign but one third of them are Finnish (Heikkilä, 2018). As a non-Finnish resident who has lived in Helsinki for only three years, I am aware that there may be cultural differences that affect my perceptions on the behaviours I am researching. Having been born in Korea and residing a large portion of my life in Canada, I lack an understanding of how Finnish roots may alter the visitor experience and how growing up close to Suomenlinna may affect the formation of behaviours and attitudes. As part of my research I wanted to understand more about the cultural relationship Finnish born residents have with Suomenlinna and what their past experiences may have been. As a non-Finnish speaker, I am also aware that language could delimit the study.

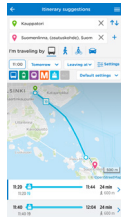
Additionally, the research for the problem exploration phase was conducted mostly in the winter months. Conducting observations and interviews outdoors during these months was challenging as Suomenlinna becomes especially cold and windy. Visitors are less likely to linger too long at an area or a sight and travel quicker to stay out of the cold weather. This made it difficult to intercept visitors for ad-hoc interviews when notable behaviours took place. Large crowds and common activities such as picnics only take place during warmer months and I was unable to observe these during this period. However, I attempted to overcome this limitation by relying on the expert knowledge of the staff at the Governing Body. I also drew upon my own experiences as a visitor to Suomenlinna and the experiences of people I knew who have visited Suomenlinna during summer months. By consolidating perspectives from both staff and non-staff I attempted to create a more balanced view of the summer months.

This seasonal limitation however did provide an opportunity. As there are much fewer visitors during these winter months, staff at the Governing Body were more available to provide interview sessions and participate in the project.



**Figure 23-25**  
Shadowing at the tourist information centre.

VISITOR BEHAVIOURS & ACTIVITIES



HSL App



Outdoor Recreation • Helsinki Residents

CHECK FERRY SCHEDULE

KAUPPATORI TERMINAL

EN ROUTE VIA FERRY

ARRIVAL

GETTING AROUND



Google Reviews



Sightseeing • Tourists

RESEARCH ONLINE

KAUPPATORI TERMINAL

EN ROUTE VIA FERRY

ARRIVAL

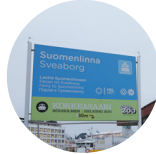
MAIN PIER

TOURIST INFO CENTRE

Visitor guidance service elements provided by the Governing Body of Suomenlinna



Official Social Media Website



\*Signage by HSL



Brochure Poster Map Display



Welcome Sign



Map Display Posters



Brochure Various Displays Info Staff



SERVICE TOUCHPOINTS & ELEMENTS



Figure 26  
**Overview of Existing Visitor Journey**



## 4.2 Solution Development Phase

### In-depth Group Interview: Helsinki Residents

Early in the solution development phase, a group interview was conducted with three Helsinki residents during a one and a half hours session. This session was intended to gain the perspectives of non-foreign visitors to Suomenlinna who reside in Helsinki. For privacy purposes, I will refer to the participants as participant A, B, and C. Participant A was from south-western Finland and has been living in Helsinki for approximately six years and is in their mid-20s. Participant A had not previously known about Suomenlinna until their move to Helsinki. Participant B is also in their mid-20s and was born and raised in Helsinki. Participant C is in their mid-30s, a parent of two young children and born and raised in Helsinki. Participant C was very familiar with Suomenlinna and has friends living on the island.

The goal of this qualitative interview was to affirm and explore further the perceptions that Helsinki residents have regarding Suomenlinna. The discussions focused on identifying the misaligned perceptions as well as why and how these misalignments may have formed. Some images of Suomenlinna taken from Instagram were used to facilitate the conversation.

### Feedback Session with Staff

After developing preliminary design options, a feedback workshop session was held with three staff members from the Governing Body. A total of five sets of concepts were presented and discussed at the one and a half hour session. Each concept illustrated a series of interventions during a visitor journey using movable sketches and sticky notes. Photos of visitor actions from social media as well as existing signage and sights were used to trigger further ideation among the participants.



**Figure 27**  
A concept sketch used for a desktop walkthrough during a feedback session.

### 4.3 Secondary Research & Literature Review

This thesis project touches upon many fields of research. The literature review included studies from tourism, behavioural studies, and service design. The relevant findings and insights from this literature review were compiled to set a theoretical framework. The theoretical framework informed the setting of the design criteria and for generating the design proposal.

It was difficult to find comparable studies or design precedents on other UNESCO sites or other well-known tourist destinations because of how unique Suomenlinna is. Few sites have both similar characteristics and a similar number of visitors per year. Instead, separate studies and design cases were referenced that matched some of Suomenlinna's characteristics and issues. These were generally categorized into two main issues, visitor behaviours leading to safety or environmental problems, and behaviours that were related to general codes of conduct. Some of the sites that were reviewed include national parks and heritage sites.

As part of the secondary research, the digital presence of Suomenlinna and the Governing Body were examined. The official website and social media platforms such as Instagram and Facebook were reviewed to investigate how the Governing Body portrays Suomenlinna in relation to visitor behaviours. Social media postings on Instagram by visitors to Suomenlinna were reviewed to identify which behaviours are frequently portrayed by the visitors and what attitudes were associated with their visit. This review contributed to understanding the misaligned perceptions of visitors that were not evident in the primary research.

## **5.0**

# **RESEARCH INSIGHTS & THEORETICAL FRAMEWORKS TO INFORM DESIGN**

This chapter begins by discussing findings and insights based mainly on the primary research including the kick-off workshop, interviews and observations, as well as secondary research. The insights that follow connect the findings from literature reviews to the research. This chapter concludes by establishing a reframed design brief and defining a design criteria to guide the design solution.

## **5.1 Research Findings and Insights**

### **5.1.1 Visitor Behaviour Patterns & Bounded Rationality**

Although accidents rarely occur, the safety of visitors is always a concern for the Governing Body. During the kick-off workshop participants reported that safety audits are conducted regularly. However, the number of incidents at Suomenlinna are not officially tracked, possibly indicating that they are rare enough that no official records are required. Still, the staff of the Governing Body are frequently alarmed by a variety of unsafe behaviours exhibited by visitors that can lead to accidents. These behaviours include:

- Walking along unofficial footpaths too close to the edges of cliffs or the edges of high ramparts. Due to the nature of the soil at some of these areas, the ground can be soft and crumble, making it possible for visitors to fall. The edges of these high precipices can also be disguised by tall grass in the summer or snow in the winter. Possible sudden wind gusts further endanger these situations.
- Swimming around the island outside of the officially designated beach can be risky and is not recommended. Visitors diving into the water may find it difficult to climb back on to land because of the slipperiness of the rocks along the edges of the island. The depth of the water is also not always apparent, and divers may be diving into shallow water. Furthermore, passing cruise ships frequently pass Suomenlinna creating strong water currents that can pull swimmers in.
- Inebriated visitors further exasperate these concerns and naturally are at higher risk to commit these behaviours.
- During the winter, tourists from abroad may not expect Suomenlinna's windier and colder conditions in comparison to the rest of Helsinki. These visitors frequently lack the proper footwear to handle icier and slipperier grounds.





**Figure 28-29** Photos from my observation sessions. The behaviours I observed match what participants reported at the kick-off workshop. These behaviours are a common occurrence.

**“There’s a sign that says ‘risk of falling’ but the visitors ignore them. There’s a fence next to the sign and visitors climb over the fence as well as with children.”**

— staff at the kick-off workshop

**“Visitors don’t obey warning signs.”**

— staff at the kick-off workshop

**“Visitors go to dangerous and risky places. They want to go see the nice view at the top of the wall.”**

— staff at the kick-off workshop



During the problem exploration phase, a number of other behaviours not explicitly limited to the physical safety of visitors surfaced as ongoing issues. These behaviours can lead to negative environmental and residential effects. The hope of the Governing Body staff is that these issues could be addressed as well. These behaviours include:

- Visiting with an intention to grill, drink, or party
- Wandering into areas of the island that are not recommended such as the residential area, the Naval Academy and the open prison
- Trampling or shortcutting through grassy terrain creating new footpaths

These undesired behaviours may seem at times irrational but can be viewed as rational behaviours when they are understood through the concept of bounded rationality. Bounded rationality refers to a notion that our intuition and reasoning are limited because they are made based within the boundaries of prior experience and knowledge, or available information based on the context of the given moment (Gigerenzer & Selten, 2001; Kahneman, 2003). Bounded rationality often affects our sense of perceived danger and risks (Thaler & Sunstein, 2009).

Unlike the Governing Body whose staff is very familiar with Suomenlinna, most visitors lack the information and experience to recognize negative behaviours. Suomenlinna's uniqueness as a historical landmark, residential neighbourhood, and open nature, all in close proximity to each other produces a kind of environment that many visitors will not have previously experienced.

**"Visitors go to where they are not supposed to."**

— staff at the kick-off workshop

**"Tourists are so concentrated on sightseeing. They walk mindlessly while taking pictures."**

— staff at the kick-off workshop

**"Often visitors don't know that the island is a sea fortress. They don't know what a sea fortress is and are not aware of the danger that is naturally associated with this kind of structure."**

— staff at the kick-off workshop

**Figure 30**

A group of tourist are using a resident's garden furniture while taking photos.



### 5.1.2 Existing Response to Safety Concerns

Many of the aforementioned safety concerns are not specific to Suomenlinna but can occur anywhere in Helsinki. However, as the Governing Body oversees the island, the agency feels that the safety of visitors is their responsibility. For smaller accidents such as a minor fall, visitors frequently complain to staff at the tourist information centre. More serious accidents can gain public and media attention. Although extremely rare, two cases of children falling, one in 2004 and again in 2018, led to newspapers questioning why more proper fencing had not been implemented (Viljamaa, 2018; YLE Helsinki, 2010). These events can damage staff morale at the Governing Body. What the newspaper articles did not take into consideration is the delicacy the Governing Body undertakes of creating a balance between visitor safety and preserving the historical integrity of Suomenlinna.

To solve the issues concerning visitor behaviour and access, the conventional solution would be to install hard measures such as adding more barriers and fences or create a greater number of paved official paths. More drastic solutions could be to decrease the number of visitors by charging an entrance fee (Pedersen, 2002). These solutions however are not suitable for Suomenlinna for a host of reasons. Primarily, the Governing Body is required to retain the original landscape in a state of authenticity because of its protected status. Second, to implement these measures would require changes in regulations which would likely involve a lengthy and political process. Furthermore, these hard measures carry high costs to plan, procure, and construct.

Safety signage provides an alternative solution to hard measures and attempts to inform visitors on the risks and precautions of a given area. However, the existing tourism research on developing effective safety signage with empirical evidence is limited. The need for developing more persuasive signs are being investigated (Saunders et al., 2019), but at the moment these developments have largely focused on natural tourist sites and not heritage sites such as Suomenlinna.

### 5.1.3 Broader Impacts of Undesired Behaviours

While initially investigating the undesired behaviours that created safety concerns, it became evident that visitor behaviours contributed to other issues that were important for the Governing Body as well. The issues include environmental erosion and residential privacy.

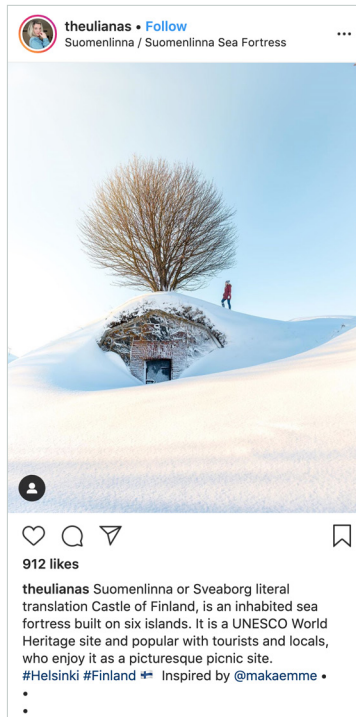
#### Environmental Erosion

Environmental erosion has been identified as one of main threats to Suomenlinna that is related to the increased number of visitors (GBS, 2012; 2015; UNESCO, n.d.). One of the long standing issues is footpaths made by visitors. These footpaths often form when visitors are walking through areas that are generally not recommended such as over grassy mounds that form the ramparts or along the edges of cliffs. Soil erosion affects the integrity and authenticity of Suomenlinna because of how it alters the landscape over time, taking years to recover. Even a simple footpath over natural grass can take as long as three years for restoration. This damage decreases the heritage and cultural value of the island.

**“Quite many paths are made by visitors, and they look like marked paths made by us, but they are not. Visitors are not supposed to use those paths.”**

— staff at the kick-off workshop





**“If people go up and down the ammunition shelters [fort hills], it causes erosions and can harm the original construction of the building.”**

— staff at the kick-off workshop

**Figure 31-32** Posts from Instagram. Posing on top of a fort hill is commonly seen in social media. [Instagram images used with permission]

**Figure 33** Deep soil erosion caused by many visitors walking on this unofficial footpath. It looks like a grassy hill, but is actually a fort structure covered with soil and grass.







**Figure 34** During a site tour interview, gardeners are showing how much soil is lost by visitor foot traffic.



**Figure 35** Some fort hills have fences installed but visitors are often seen climbing over the fence.

**Figure 36-39**

Different signs and fences have been installed by the Governing Body over the years in trying to dissuade visitors from climbing fort hills and walls. However, staff reported at the workshop and interviews that these measures are not as effective as they hoped.





## Privacy of Residents

The privacy of residents has increasingly become more problematic with the increased number of visitors. The number of resident complaints has seen a steady rise, affecting the identity and wellbeing of Suomenlinna residents. Visitors are sometimes unaware that the residential buildings are not part of a tourist attraction but are homes for island residents similar to any other district of Helsinki. Some visitors have reportedly been entering private property such as homes and gardens or taking photos inappropriately with the children of residents.

The wellbeing of residents is important because the Governing Body and other stakeholders wish to maintain the identity of the island. There is a fear of “Suomenlinna turning into a mere museum site” (GBS, 2015, p. 30). If residents leave Suomenlinna because they are unhappy with the impact of tourism it would change the identity of the island. Being a residential district of Helsinki is seen as a strength that adds a sense of vitality, creating a living cultural environment unlike any other. Residents leaving would also have an effect on the revenue generated from rent and would decrease the operating budget for the Governing Body allocated for the conservation and maintenance of Suomenlinna.

**“Some tourists make kids pose for them.”**

— staff at the kick-off workshop

**“I just received feedback from residents. A group of parents are really worried about their children and tourists taking photos.”**

— staff during a review session



**“Some of my neighbours find it irritating that more and more visitors are eating here [in front of their apartment building], yet at the same time from the visitor’s point of view, it’s an amazing place to see with a fantastic scenery.”**

— staff who is also a long-term resident of Suomenlinna during an interview

**Figure 40** The pink building is an apartment block. The open green area in front of the apartment is popular among visitors.

**“Some residents feel that there should be more negative signs ‘please, stop. Don’t come this way.’ But I feel that we can’t do it. It’s an open fortress. It’s open to anyone.”**

— staff who is also a long-term resident of Suomenlinna during the interview

**Figure 41** The existing residential area sign.



**Figure 42** A residential area sign on an open gate.

**Figure 43-44** A visitor in an Instagram post using the swing circled below in a residents' courtyard. [Instagram image used with permission]

**Figure 45** A visitor in an Instagram post using a planter box to pose, which is actually placed on the steps by the resident to discourage visitors from entering. [Instagram image used with permission]

**Figure 46** A house with an wooden bar on the steps with a sign reading "Private" to keep visitors away.



"If one person wanders into your yard, it's okay. But if it's 1000 per day, it's not."

— staff at the kick-off workshop

"Tourists are really surprised when they find out that there are people living here. They often think that the whole island is a museum."

— staff during an interview



### 5.1.4 Underlying Issue

The underlying issue that these behaviours have in common are the result of misaligned perceptions and ineffectual visitor guidance.

#### Misaligned Perceptions

Visitors often have their own perceptions of Suomenlinna that are not always completely in line with the Governing Body's intentions. Suomenlinna's identity is complex and unique. It cannot be easily summed up into a singular concept but is a combination of ideas that does not have many equivalents to neighbourhoods in other countries. When visitors arrive with their own perceptions of Suomenlinna, it affects their behaviours on site. These notions are rooted in past experiences forming their own bounded rationality. For visitors who are tourists, Suomenlinna could appear to be an open-air museum island in which the sole purpose is to recreate an older era and they may assume all the inhabitants are actors re-enacting a past lifestyle. Areas of Suomenlinna look very much like an old town with cute historical looking houses, architecture, and cobble stone streets. For visitors who are residents of Helsinki, their perceptions are more deeply rooted and were formed decades ago. For them Suomenlinna has been a favourite recreational area since the Council of State decreed the island for civil purposes in 1973 (GBS, 1985). Helsinki area visitors see the island as an ideal place for a picnic, drinking, or swimming around the coast.

The Governing Body recognizes that these perceptions need to shift away from "a nice place to picnic" and include understanding the value of Suomenlinna as a "historic destination" (GBS, 2015, p. 22). In the kick-off workshop, several participants from the Governing Body had similar views and as one participant said:

*The biggest point is, people don't understand Suomenlinna as a World Heritage Site, and how to act accordingly to respect the place.*

Currently many visitors understand that Suomenlinna is a historic destination to some degree. According to the visitor surveys from 2014 and 2018, about 65% of visitors knew that Suomenlinna is a World Heritage Site before their visit (Heikkilä, 2018; Lempiäinen & Ruoho, 2015). However, this awareness doesn't necessarily mean that visitors translate this into behaviours that are in line with the historical value of the site. Similarly, during the in-depth group interview of Helsinki residents, all three participants immediately responded that they knew the status of Suomenlinna as a UNESCO World Heritage Site. Yet, none the participants knew what this status meant in relation to actual visitor behaviours. When I asked the group which behaviours they think are allowed and which are discouraged, the group was very unsure.

With the growing number of visitors, the urgency to shift these long-held perceptions escalate. Furthermore, in order to ensure that tourism to Suomenlinna remains sustainable, the Governing Body needs to help visitors translate the awareness into behaviours that don't damage the cultural and historical value of the site.

**"We heard from some foreign tourists that we should hire people to act as residents here. They thought that these buildings are empty."**

— staff at the kick-off workshop

**"I think of Suomenlinna as a place of adventure. You can wander around and no one is watching."**

— Helsinki resident during an ad-hoc interview

**"I heard a boy telling his mom that they cannot go this way because there's a fence and it says do not enter. Then the mom said that they are for tourists, not for those who live in Helsinki."**

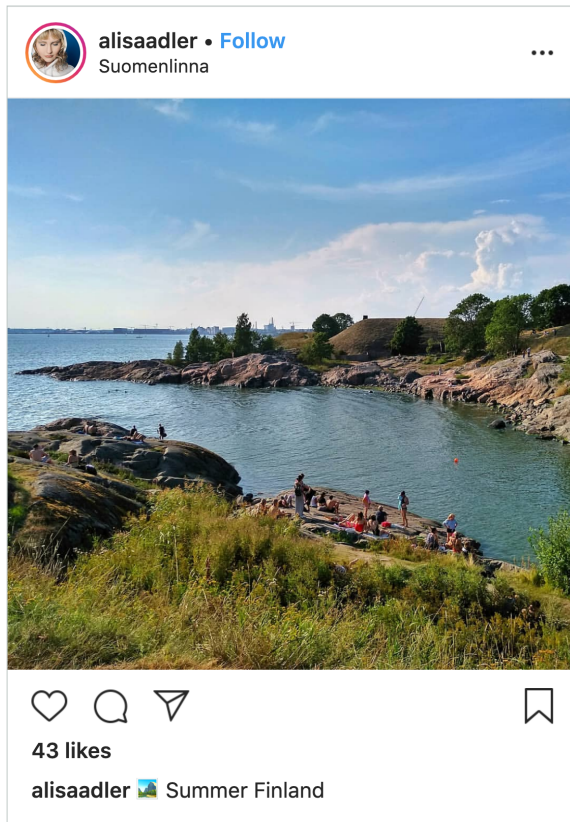
— staff at the kick-off workshop

**"The image that I have about Suomenlinna is this feeling of adventure and excitement."**

— Helsinki resident during the group interview

**"Picnic, food, and a beach."**

— Helsinki resident during the group interview



**Figure 47** A group of visitors sunbathing, swimming, and picnicking a common sight during warm weather. [Instagram image used with permission]

“Suomenlinna Picnic: Our super-secret picnic spot on the cliffs of Suomenlinna island. Best place to be if you want to avoid the crowds during sunny summer days.”

— A Finnish resident of Helsinki via Flickr



**Figure 48** A visitor sitting on the edge of a rampart. [Instagram image used with permission]

The Governing Body does empathize with visitors, however. For many Helsinki residents and the staff of the Governing Body, these perceptions were formed around experiences during their youth and are very much a part of Finnish culture in general. As one participant said in a review session:

*Like myself, Helsinki residents have been coming here every year for a picnic. Before I started working here, I didn't know that there are museums here even though I visited over 20 times. If you have a certain idea about a place for 20 years, it's really slow to change the image.*

For foreign tourists, there is an understanding that tourists can be easily misinformed. The island is very much a tourist attraction with the Governing Body welcoming visitors. However, it is both a slice of raw nature that is open in which visitors must take practical precautions, and yet also simply a district of Helsinki as any other with residents and businesses. Although there is an understanding of these experiences, the Governing Body still has a responsibility to preserve Suomenlinna for future generations.

### Ineffectual Visitor Guidance

A lot of the existing signage to guide visitors at Suomenlinna is not having the desired effect. Navigating for visitors can be challenging as signs can be inconsistent. Some areas have too many signs creating cognitive overload, while other areas have no signs at all. Many signs are also hidden from view because of how easily they blend into the landscape. Although, architects at the Governing Body intended for signs to blend in to some degree to maintain the original authenticity of the landscape, there can be negative side effects. This unclear wayfinding creates confusion among visitors. Often, they unconsciously or consciously end up following other people, taking any visible footpaths, or end up in areas of the island that are not recommended.

**"We've been trying to get more visitors to come here to see the historical site, and not to drink beer and have a party."**

— staff at the kick-off workshop

**"Being able to picnic is a big part of feeling good here. I know a lot of people who wouldn't come here if picnics were banned. So how do we motivate people to have a picnic but respectfully? The environment is delicate."**

— staff during an interview

**"We have lots of signs, but the problem is how to get people to see and understand the signs."**

— staff at the kick-off workshop



**Figure 49-50** "Risk of Falling" signs, but it's not clear where the risk of falling is.



**Figure 51** During the evening of an event, a hand-made sign for toilets is taped next to an existing sign creating confusion.

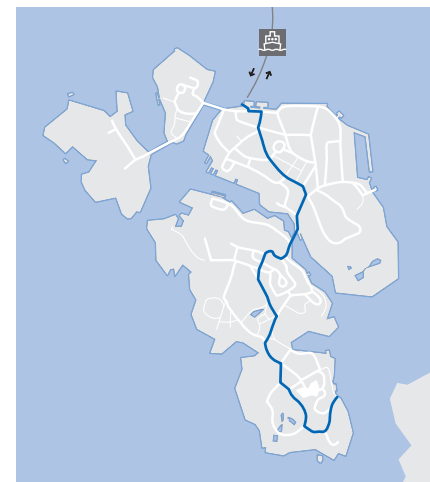




**Figure 52** A path to King's Gate. The blue arrow indicates the correct direction to take in this forking path. The wayfinding sign is difficult to see because it is installed behind a tree.

There is a path recommended by the Governing Body for visitors to view all the key sights in a one to one and a half hours timespan. This route is known as the Blue Route and has been carefully planned to handle increased foot traffic. The Blue Route is listed on the official Suomenlinna website and is noted in maps and brochures, but not many visitors are aware of it. Although the Governing Body tries to educate the public to take marked paths, the Governing Body is aware that what constitutes a marked path is not always clear. Not every official route at Suomenlinna is paved or marked with fences guiding visitors. Some paths may appear to be marked paths but are in actuality improvised paths made by other visitors.

During the thesis process in the problem exploration phase, the Governing Body at times signalled mixed messages. Visitors are free to roam around and visit open areas as long as they behave in a respectful manner. They are free to picnic and drink as long as they are not creating a disturbance. The Governing Body cannot ban people from entering open areas, Suomenlinna is as any neighbourhood in Helsinki, open and public. At the same time, some areas and paths are not recommended for visitors for various reasons. For tourists wishing to take in the sights, some routes can require a long walk and may not even have anything of interest. Visitors may end up far from the main attractions in residential neighbourhoods or at the Naval Academy. As an attempt to control the situation, the Governing Body hires guards during the summer to patrol the island on bicycle. During the evenings they watch out for heavy drinking, public disturbances, or campfires, but they do not have legal authorities.



**Figure 53** A map of Suomenlinna showing the Blue Route.



**Figure 54** A couple went up the ramp after seeing another visitor on top of the wall. They were looking for King's Gate. They reported that they didn't see any signs and were confused. In the photo, the direction to King's Gate is shown with the blue arrow. The signpost doesn't have a plate showing the direction to King's Gate or the Blue Route.

**"Is this King's Gate?"**

— A couple during an ad-hoc interview

**"Sometimes, when I am sitting in my apartment's yard, visitors come and ask me 'where should I go? Where am I?' Yet, lots of visitors take this route. They really like them, but they are also confused."**

— staff who is also a long-term resident of Suomenlinna during an interview

**"I look at the wayfinding signs, but the islands are so confusing. So I usually just go to the place that I always go to."**

— Helsinki resident during the group interview



**Figure 55** A sign post in a residential area without blue plates because this area is not part of the Blue Route. When a visitor is away from the Blue Route, there is no indication of how to return to the Blue Route.



“I would appreciate clear and well-presented information that tells me where I am not supposed to go. Because I don’t want to go there. I don’t want to end up there by accident when I am wandering around because I don’t want to interrupt anyone’s daily lives.”

— Helsinki resident during the group interview



**Figure 56-59**

Up these stairs, through the arch, is a courtyard for the apartment block. The residential area sign is not visible unless you go through the arch and is easily missed.

Visitors often wander into the courtyard and take photos. This issue was reported by a staff member based on their observations over the years as well as their conversations with residents.

It is not forbidden for visitors to enter this courtyard as long as they are respectful.



“Overall, the wayfinding signs were pretty good and clear. But one time, I wish the residential area sign was placed earlier, because when I saw it, I think I was already in someone’s yard. I don’t want to disturb people.”

— A visitor during an ad-hoc interview at the tourist information centre





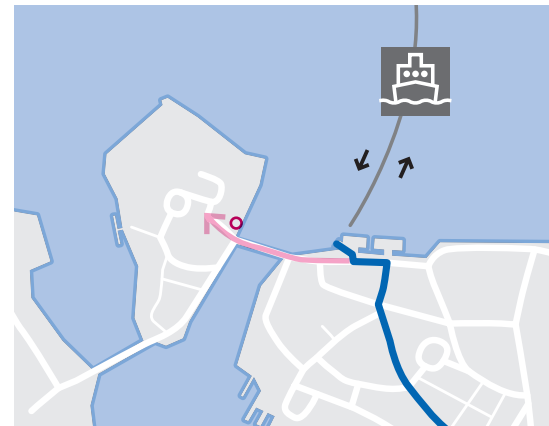


**Figure 70-74**

After getting off the ferry, visitors are often drawn to this bridge to take photos and take in the view. Visitors then cross the bridge and are drawn to a large map sign. After reading the sign, they proceed towards the arch for sightseeing. A sign like this usually is an indication that there is something of interest for visitors.

Just past the arch is a yellow sign that reads "Military Area: Unauthorized entry is prohibited and punishable" with a pictogram indicating "No Entry / Stop." This can leave a negative impression on visitors.

Visitors are actually allowed to turn right after the arch and make a loop, which is what the Governing Body is trying to communicate using this map sign. However, the effect and placement of the map sign needs to be reconsidered because it is not working in the way it was intended. Many visitors turn back altogether after seeing the "Military Area" sign looking confused.



## Further Impact: Visitor Experience & Staff Morale

Visitors expect a certain level of services and infrastructure when visiting Suomenlinna. The Governing Body has been collecting visitor feedback for many years. Most notably the visitor survey done every four years in addition to other feedback channels such as the suggestion box at the tourist information centre. The feedback on the visitor experience satisfaction level has been fairly consistent. Visitors generally report in the survey that they are satisfied and enjoyed their visit. However, the recurring issue reported as a major factor negatively influencing their visit usually related to visitor guidance, primarily signs that are difficult to spot or lack thereof. This led to unwanted moments of being lost and wandering (Heikkilä, 2018; Lempiäinen & Ruoho, 2015; Törrönen, 2017).

In the winter, visitors often complain about the lack of winter maintenance on the streets. In the summer, visitors complain about the long walks required between sights and the lack of public bicycles. As well as lack of public toilets, rest areas, or adequately paved routes for wheelchair or baby stroller accessibility. These expectations form the misaligned perceptions of Suomenlinna that the site is purely meant as a visitor attraction and to serve the comfort of visitors. This can lead to a disappointing visitor experience. Meanwhile, the Governing Body staff can feel unfairly judged.

Both from complaints and these ongoing issues lower staff morale. Visitors do not seem to care or obey the general guidelines set by the Governing Body. On top of this, the staff of the Governing Body is continuously attempting to restore environmental damage done to Suomenlinna by visitors taking shortcuts on top of grassy ramparts or fields. During the on-going restoration, the damage is repeated by visitors not obeying signs creating a perpetual cycle.

“When I am in my yard, people come up and ask for directions to main attractions. When they find out that they are in a totally different part of the island and that they need to cross 3 more islands the opposite direction, they get upset and say ‘oh no, I will just go back to the ferry. It’s too far.’”

— staff who is also a long-term resident of Suomenlinna during an interview

“In the King’s Gate area, we have re-planted the grass at least 3 times in the last 10 years.” ”

— staff at the workshop



**Figure 75** The relationship between underlying issues, visitor behaviours, and wider negative impacts.

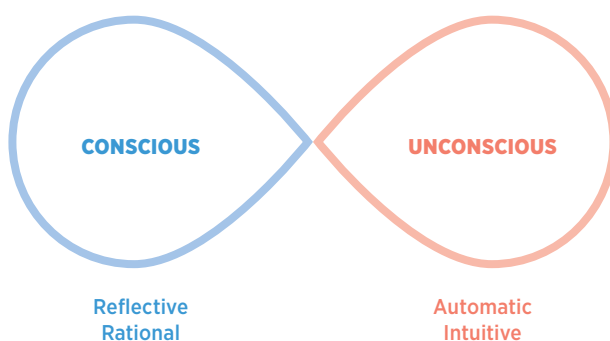
## 5.2 Theoretical Frameworks

In this section, I will discuss the theoretical frameworks that were used throughout the project and provide a more detailed background on the specific theories and approaches. The disciplines that the theoretical frameworks are drawn from are:

- Behavioural Insights: Involves fields of science such as psychology and social science. It is the study of our behaviours, why we behave the way we do, and what influences these behaviours. The theoretical frameworks and its applications from this field was researched to enhance insights from my own primary research.
- Tourism Research: This included literature focused on academic perspectives and the application of theories within tourism. Analyzing literature from this field provided a better understanding of the strategies and approach of the Governing Body.
- Service Design: The main approach of this thesis project. Chapter 5.2.4 of this thesis provides some background on this approach and then further discuss how a behavioural approach was applied in combination.

### 5.2.1 Conscious and Unconscious Decisions

In trying to make sense of how misaligned perceptions and ineffectual visitor guidance affect the behaviours of visitors, research in the field of behavioural studies can provide some answers. One of the key insights from behavioural studies is that our behaviours are governed by both conscious and unconscious decisions and biases. This is a concept known as the two systems model popularized by Daniel Kahneman (2011), a Nobel Laureate psychologist and a behavioural economist. This concept divides the cognitive process of our decision-making into conscious and unconscious parts. The conscious side drives the process of reflective and rational reasoning, while the unconscious side drives automatic and effortless intuition. These processes, both conscious and unconscious are informed and affected by context such as environmental and situational cues, social norms, prior knowledge (Kahneman, 2011; Rare & BIT, 2019). In much of our decision making, “situational cues and prior knowledge gives us a strong sense of what others are doing and what we are ‘supposed to’ do” (Halpern, 2016, p. 110).



**Figure 76**  
Two systems model.



Through this concept, the behaviours of visitors can be more clearly understood. For example, when visitors are navigating Suomenlinna, they may intuitively follow larger crowds or instinctively move in the direction of where the arrow of a sign points them. These automatic behaviours are the result of the unconscious side of the mind. Decisions made using the conscious process on the other hand are slower and more deliberate. A visitor reading a sign in full, recognizing the arrow and reflecting on whether to follow the direction would be a deliberate conscious decision.

The two systems model can also help to explain dangerous behaviours. These behaviours can be the result of either conscious or unconscious decisions, or a combination of both. For example:

- Unconscious decision: A visitor sees a high vantage point and they may have an emotional urge to take a photo from a scenic view. If people are already at that high point, they may intuitively want to gravitate towards the larger group of people.
- Conscious decision: A visitor may consciously reason and believe that if people are already gathered at that high point then it must be acceptable and therefore start to climb to the higher point.
- Unconscious decision justified by conscious reasoning: A visitor sees the high vantage point, but a fence blocks their path. There is an emotional urge to see the scenic view and take a photo. In a moment of contemplating whether to climb the fence, they justify their actions by assuring themselves and may think “That’s okay, if I am just cautious, I will be safe.”

With the understanding of the limits and drivers of both conscious and unconscious decisions, we can design a solution based on how people process information and decision making.

It is possible to target these behaviours because they are not “random nor senseless” but are “systematic and predictable” (Ariely, 2010, p. 20). These behaviours repeat and form patterns. These patterns can be recognized and what causes these lapses of judgement can be systematically addressed.

## 5.2.2 Designing with Behavioural Insights

The nudge approach demonstrates how using this understanding of both conscious and unconscious influences can aid in developing strategies to guide people to make better decisions. This approach was named and popularized by Richard Thaler and Cass Sunstein (2009).

Thaler and Sunstein (2009) define that the nudge approach uses ‘nudges’ to guide people’s behaviour, ultimately intended to help them make better choices for themselves and for the common good. Nudges are interventions or any factors put in place to alter people’s behaviour in a particular direction, in a predictable way without any heavy disincentives or regulations while allowing freedom of choice (Thaler & Sunstein, 2009; Sunstein 2015). For example, “putting fruit at eye level counts as a nudge. Banning junk food does not.” (Thaler & Sunstein, 2009, p. 6). It can be anything that “attracts our attention and influences behaviours” (Thaler, 2015, p. 326).

This approach is well suited for the unique nature of Suomenlinna and the intentions of the Governing Body. Suomenlinna is a site in which the Governing Body does not want to completely limit people's freedom of movement but still want to promote behaviours that are positive. While speaking about exploring the island, staff at the Governing Body often described that visitors are free to explore the island but with a few caveats. There are many areas of Suomenlinna that are open for the public but are also generally not preferred places to visit for the majority of visitors. However, visitors are free to enter many areas as long as they are respectful and sensible.

Thaler and Sunstein (2009) provide a set of principles describing what constitutes a good nudge, but how to actually design effective nudges can be left up for interpretation. To help inform well designed nudges, they provide a collection of examples that they found from various fields of research and design cases.<sup>1</sup>

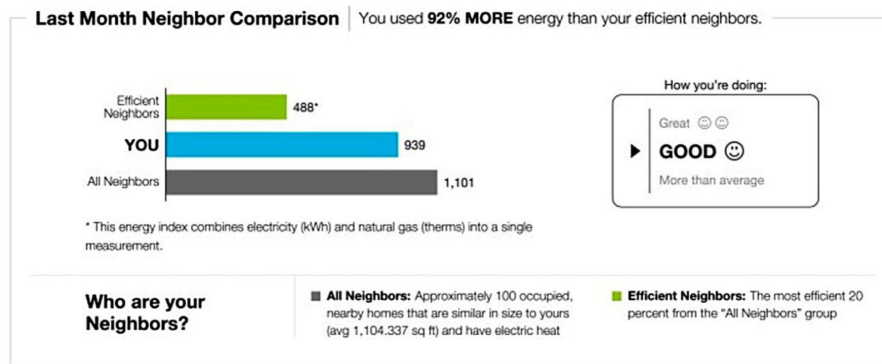
Nudges in combination with other behavioural insights are increasingly being used by multiple government agencies to help steer the public towards better decisions (Sunstein & Reisch, 2019). The Behavioural Insights Team, an organization that originated as a government agency from the UK, has been using insights to design for behavioural change in public sectors. David Halpern (2016), who heads the Behavioural Insights Team, points out that designing with behavioural insights means applying knowledge from psychology as well as behavioural and social sciences, and not explicitly limited to creating only nudges. He further clarifies that behavioural insights and nudges can be applied alongside laws and regulations.

This thesis draws upon multiple behavioural insights that drive and influence our decision making. These include context specific factors as well as social norms, attitudes, and the use of conscious and unconscious heuristics and biases. The principles and a more detailed description of the behavioural insights used for the design solution in this project are presented in Chapter 6, Design Proposal, of this thesis.

As a general theoretical framework for this thesis, using nudges and other behavioural insights is well suited for the Governing Body to address undesired behaviours of visitors. This approach would not require major changes to the operation of Suomenlinna, regulation or policy changes, nor would it be cost prohibitive. Behavioural insights or nudges can be applied to guide better decision making of visitors by curbing undesirable behaviours and promoting desirable behaviours.

For example, a successful application of a behavioural approach is the case of Opower, which is included in the book *Nudge* (Thaler & Sunstein, 2009). Opower provides bills and energy reports to customers on behalf of utility companies. The design of the bill and energy report (see Figure 77) is informed by social psychology in how the information of home energy use is presented and communicated to residential customers (Schultz et al., 2018). The design was inspired by behavioural research including a field experiment that investigated if a message applying the concept of social norms could influence behaviours and lower energy consumption at home (Schultz et al., 2007).

<sup>1</sup> / This created a slew of confusion and criticism on what constitutes as a nudge. It is an ongoing debate in both academia and practice and often politically controversial (Halpern, 2016; Hansen & Jespersen, 2013; Sunstein 2015).



**Figure 77**  
Sample from Opower home energy report.  
[from Schultz et al., 2018]

### 5.2.3 Tourism Research

The staff at the Governing Body whose work relates to the area of visitor guidance services generally have a tourism background. Therefore, it is helpful to understand the theoretical frameworks based in tourism that drive the development of the Government Body's strategies in sustainable tourism and visitor management.

In 2015, the Governing Body published their strategy for sustainable tourism. Sustainable tourism seeks to balance two objectives, site conservation and tourism development. In this report, the Governing Body and stakeholders agree that visitor behaviours do not always align with behaviours that understand the historical and cultural value of Suomenlinna. The Governing Body recognizes that these behaviours would need to change. The strategy to influence these behaviours outlined in the report is focused on communicating the value of Suomenlinna as a World Heritage Site to visitors through what is called 'interpretation' (GBS, 2015; Törrönen, 2017).

*"Visitors gain a better understanding of Suomenlinna's exceptional value and conduct themselves accordingly."* (GBS, 2015, p. 35)

Interpretation is used as a primary tool by site managers for developing sustainable tourism (Moscardo, 2014; Pedersen, 2002). It is a concept commonly used in tourism research and attempts to communicate the natural or cultural importance of a site through information and inspiration (Moscardo, 2014; Puczkó, 2006). This can include guided tours, brochures, signs, or any other means of delivering information.

The research in effective interpretation also applies findings from psychology and social science in order to influence visitor behaviours. Interpretation is based on the logic that once visitors gain a better understanding and become more aware, they will naturally become more concerned and protective of a given site. Not only does this increase the visitor's knowledge but it can also increase the overall enjoyment of a site. The goal is that once this awareness is achieved, visitors will become more mindful of the ways their actions and behaviours impact the site (Moscardo, 1996). This mindfulness increases the appreciation visitors have and through this, behavioural changes that promote conservation can take place.

While it can be effective, the model of interpretation relies heavily on a conscious and active process of learning and decision making. It does not fully address situational context when unconscious processes and instinctive reactions become dominant. To counteract this, Moscardo (1996) proposes strategies to support the visitor's conscious mindfulness by reducing mental fatigue (e.g. make navigation easy) or physical tiredness (e.g. provide rest areas). Other proposed strategies include using multi-media technology or participatory activities to make the conscious engagement more attractive and noticeable (Moscardo, 1996; Puczko, 2006).

However, one of the key findings in behavioural insights is that conscious attention is a scarce resource and our conscious mind operates on limited capacity (Kahneman, 2003; 2011; Thaler & Sunstein, 2009). Strategies that ease the conscious mind's cognitive load can only go so far and the visitor can only learn so much. Furthermore, the well-intended goals to respect a site using interpretation can be easily forgotten and overridden by automatic, unconscious, and emotional impulses. Another limitation of interpretation is that not all visitors are interested in learning and there are efforts still in progress to address this gap within the interpretation model and tourism research (Kempiak et al., 2017).

Interpretation remains a valuable strategy to engage visitors and shift behaviours for sites such as Suomenlinna. In fact, the Governing Body has an ongoing project to improve the interpretation through updating informational signs that provide cultural and historical facts. This need for more informational and educational content has been identified in the visitor surveys (Heikkilä, 2018; Lempiäinen & Ruoho, 2015). At the same time, the inherent flaws of interpretation must be recognized and the gaps created by these flaws can be satisfied by other means of design interventions. In doing so we can guide visitors towards positive behaviours even when our best efforts in creating mindfulness fail and unconscious impulses take over.

## 5.2.4 Service Design Approach

As defined by Manzini (2011) and Penin (2018), a **service** is made up of interactions between people, things, and places that generates value between the provider and the user. They further define that **service design** explores the interconnected experiences within these interactions and shapes the enabling conditions for these interactions. Using these definitions, it is possible to view the Governing Body as an agency that provides and enables a service. For visitors, the Governing Body enables a set of interconnected experiences through the use of service elements. These elements can be any touchpoints of interaction visitors encounter such as the information centre, signage, social media, posters, and many others. As Manzini (2011) would describe these physical elements are the "evidence" (p. 5) that warrant the Governing Body as a service provider. Following this logic that the Governing Body is a public service organization, Suomenlinna can then be viewed as a servicescape. A servicescape is the entire physical setting of the service, often also referred to as the stage of a service (Penin, 2018).

After establishing that the Governing Body is a service provider and that as an organization, they are providing a service to the visitors of Suomenlinna. It is possible to explore the benefits of a service design approach.



## **Service Design is Holistic**

The holistic quality of a service design approach is of significance for the purposes of this thesis project. Service design is holistic in multiple aspects. The approach views the experience of a visitor as a whole (Penin, 2018; Stickdorn & Schneider, 2011). In the context of Suomenlinna, a service design approach enables us to understand the influences of various elements across the entire visitor journey. Fields such as marketing, graphic design, tourism strategy, or architecture, tend to specialize in specific touchpoints that interact with the visitor during a journey. Service design attempts to combine all the different but relevant touchpoints into an interconnected coherent system for investigating design solutions. This also means that service design is transdisciplinary and systematic (Penin, 2018; Stickdorn & Schneider, 2011; Stickdorn et al., 2018). Additionally, service design includes considering what is behind the implementation of a service and the network of influences on that service (Penin 2018; Sangiorgi & Prendiville, 2017).

## **Service Design is People-Centred**

Service design takes into consideration the multiple perspectives of all the people interconnected with the service. This includes people who are service users (the visitors of Suomenlinna), service providers (the staff at the Governing Body), and the people affected by the service (the residents of Suomenlinna).

Many of the methods and tools in service design is rooted in the approaches of human-centred design, design thinking, and co-design (Penin, 2018; Stickdorn et al., 2018). These are methods that help designers understand people and the service system by observing, listening, and engaging with them in real world situations throughout the design process.

### **5.2.5 Combining Service Design and Behavioural Insights**

Service design is context sensitive. As Dilnot succinctly expresses, service design is “the design of situations” (Dilnot, 2018, p. 11). A service is made up of multiple elements and touchpoints, the environments that support these interactions also have an influence on how these elements interface. Service design is context driven and research in behavioural insights acknowledges the highly sensitive nature of people’s behaviours towards context, creating a natural fit. For service designers, behavioural science can further explain the invisible forces that shape people’s decisions and behaviours. Service design methods and tools primarily focus on generating insights on people’s actions and desires (Van Lieren et al., 2018). Research from behavioural studies can complement service design by providing further understanding on people’s behaviours.

Using a service design approach guided by behavioural insights is well-suited for this thesis project because it attempts to address how people’s behaviours are influenced throughout a servicescape. This approach can inform how to design for the sensitivity of people’s behaviours to influence while considering the entire visitor journey.

### **5.2.6 Applying Behavioural Insights Responsibly**

Although the nudge approach and behavioural insights has become increasingly popular, these methods have not been without criticism. The criticisms against this approach often question the ethical use of behavioural science, this thesis will not attempt to enter this discussion but does acknowledge these criticisms. To counter claims that organizations that utilize a nudge approach or other behavioural insights are manipulating people, this thesis recommends that the appropriate use of these methods remain transparent and accountable. Otherwise this approach begins to enter the realm of manipulation, these methods are not meant as a form of “subliminal advertising” (Sunstein & Reisch, 2019, p. 132).

As a government agency, the importance of accountability is heightened. As such agencies must be careful to monitor public concerns and be able to answer to the public (Halpern, 2016). In order to achieve accountability, efforts were made during the thesis process to ensure that messaging and words used in interventions were carefully chosen and examined to not be deceptive as justification to deter visitors from committing undesired behaviours. These methods and tools should remain open and the use of these tools should be happily handed over to the public for scrutiny (Thaler & Sunstein, 2009). Any future tools and solutions by the Governing Body using nudge theory and behavioural insights beyond this thesis project should aim to remain fully accountable and transparent.

### 5.3 Design Criteria and Solution Development

In the previous chapters, findings and insights from research were discussed. These findings established that the visitor behaviours that lead to safety concerns had an underlying set of behaviours that were contributing to other problematic issues for the Governing Body, mainly in conservation and residential privacy. The insights demonstrated that these behaviours were the result of both conscious and unconscious decision making. With this in mind, for effective behavioural changes to occur, both these conscious and unconscious mechanisms need to be considered. The insights further revealed that preconceived perceptions and ineffectual visitor guidance were underlying issues of conscious and unconscious visitor behaviours.

Then theoretical frameworks from service design, behavioural studies, and tourism research were examined to understand the problem in depth as well as to inform and inspire the process of possible design solutions. Based on these, a design criteria was established. The criteria focused on prioritizing the behavioural change of visitors and acknowledging how these behaviours can shift throughout the visitor journey. It was important that the criteria remained within the scope of the project and the abilities of the Governing Body.

The **two objectives** that formed the design criteria are:

- Realigning the perceptions of visitors, both before the visit and during the visit
- Guiding visitors during momentary lapses in judgement at on-site touchpoints

These two design objectives **must be achieved together simultaneously** to be effective.

To achieve this criteria, a **two-pronged approach** combining an awareness campaign as well as improvements to on-site interventions in the visitor guidance service can be used. Using this approach recognizes both the unconscious and conscious mechanisms of people's decision making and resulting behaviour.

An awareness campaign would aim to realign the perceptions of visitors with the cultural and historical value of Suomenlinna, and over time, aid in shifting visitors away from behaviours rooted in past experiences. To strengthen the awareness campaign, the design has been informed by behavioural insights. By improving visitor guidance service informed by behavioural insights, undesired visitor behaviours can be influenced. These on-site improvements would assist during moments of momentary lapses in judgement and when unconscious decision making is the driving factor.

## 6.0 DESIGN PROPOSAL

Based on the design criteria established in the previous section, this chapter discusses the **two-pronged approach** in detail as a design solution for Suomenlinna. This chapter begins with a brief examination of how the proposed design solution recognizes both the conscious and unconscious sides of the mind. It is followed by an overview of the general design principles used to develop the proposed solution. These general principles, which were informed by behavioural insights, guided the visual design, language, and the rationale behind design decisions for the proposal as a whole. Afterwards, the chapter breaks down each prong of the design solution. Beginning with the **awareness campaign** as the first prong and then presenting improvements to a group of specific signage to serve as **on-site interventions** as the second prong.

The status of this design proposal is not a final solution that is ready for pilot implementation but outlines a clear strategy for the Governing Body and additionally provides designs for high-fidelity prototypes to mimic very closely the final form as it would appear to visitors. Some field testing has been done with high-fidelity prototypes as discussed in Chapter 7 of this thesis, along with results and steps for improvements and further testing.

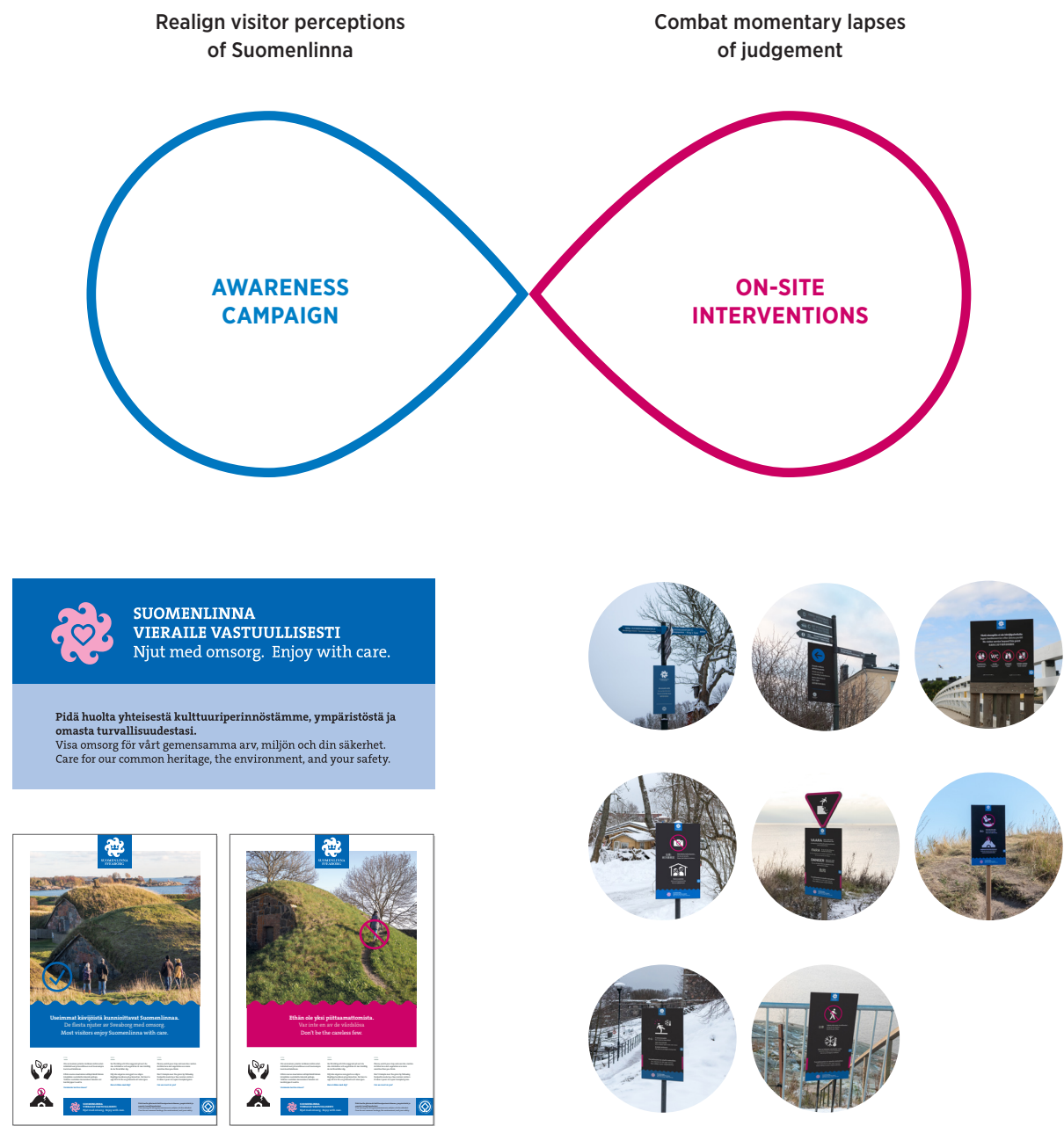
### 6.1 Addressing the Conscious and Unconscious Mind

Current research indicates that lasting behavioural changes can be achieved by engaging both the conscious and unconscious sides of the mind (Frey & Rogers, 2014; Shultz et al., 2018; Bisset & Lockton 2010; Ölander & Thøgersen, 2014). The design of the two-pronged approach outlined in this proposal considers both the conscious and unconscious mind.

An awareness campaign engages the conscious mind and focuses on realigning the perceptions of visitors with the cultural and historical value of Suomenlinna. Through awareness and education, these perceptions can shift over time. This education is more likely to influence behaviour when its presented in a manner that recognizes the imperfect ways people's minds process information (Sunstein & Reisch, 2019). The design awareness campaign is informed by behavioural insights to increase its effectiveness.

This awareness campaign is supported through the use of on-site interventions that improve the visitor guidance service. These improvements combat mindless behaviour that is on auto pilot. An awareness campaign is not enough, as emphasized in the report by Rare and the Behavioural Insights Team (2019), "knowledge simply doesn't equate to action" (p. 8) and that "information alone is a weak route to behavioural change" (p. 17).

Figure 78  
Overview of the design proposal  
using a two-pronged approach.





## 6.2 Getting the Basics Right: Visual Design, Language, and Location

The following general principles formed the basis in designing the awareness campaign and the visitor guidance signage. These principles have been divided into three main categories: visual design, language, and location. More detailed descriptions on the application of relevant behavioural insight are provided for each intervention in Chapter 6.3 and 6.4 of this thesis, to emphasize certain rationale and the ideas behind specific interventions.

### 6.2.1 Visual Design

In addition to the literature review on behavioural studies mentioned in Chapter 5 of this thesis, a further literature review was done on safety and warning signs from the perspectives of tourism research, cartography, and cognitive science. The combined findings from these reviews helped to form the general principles in developing the visual design for the proposed solution. The following is the guidelines for all visual design included in this solution proposal:

- Use simple and intuitive graphics (Halpern, 2016).
- Ensure that pictograms are designed to be simple, clear, and highly visible without containing small details (Korpi & Ahonen-Rainio, 2015).
- Develop signs to be noticeable in size, colour and shape that contrast with the surroundings (Weiler et al., 2015).
- For text, mix of upper and lower case because it is processed better by the reader (Weiler et al., 2015).
- Maintain brand visuals set by the guideline provided by the Governing Body.
- Graphics should not visually disrupt the landscape of Suomenlinna.

Based on this guideline, a new set of pictograms was developed (see Figure 81).

Additionally, the official logos of Suomenlinna and the UNESCO World Heritage Site are applied across the interventions. This was done not just for branding purposes, but it is also based on behavioural insights to increase the effectiveness of the intervention.<sup>2</sup> Adding logos can:

- Increase credibility of warning signs (Rogers, Lamson, & Rousseau, 2000).
- Induce compliance (Weiler et al., 2015).
- Increase influence when an authority communicates information (Halpern, 2016).

However, an added note of caution and recommendation is that the Governing Body stay consistent with their use of logos. Currently, some signs use the Governing Body logo and others use the Suomenlinna logo. There may be a logic behind the different uses of these logos but from the perspective of a visitor, they will generally not differentiate between the two entities. My suggestion is to use only the Suomenlinna logo alongside with the UNESCO logo for communications concerning visitors.

<sup>2</sup> / These behavioural insights combined is known as the messenger effect or halo effect.



Figure 79-80 The existing pictograms in the main brochure and a poster. The graphic style of using thin white lines is difficult to read at times.



Figure 81 Proposed set of redesigned pictograms to improve legibility.

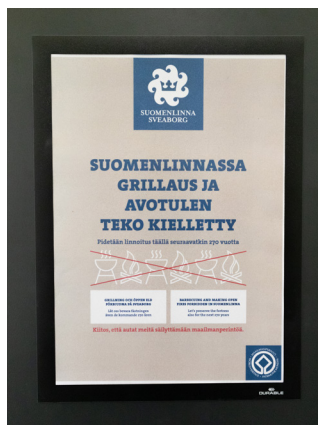


Figure 82-84 Current use of different logos creating inconsistency.

### 6.2.2 Language

All the wording used in the interventions were carefully crafted with the following two principles as the basis each time a message needed to be phrased.

- Using brief and polite language. The most effective wording is brief in presenting presentation, polite (e.g. adding “please”), and uses a succinct statement (Winter, 2006).
- Using simplified message (Halpern, 2016). It should be easy for the reader to identify the key message, required action, and risk (John, Sanders, & Wang, 2014).

Generally speaking, it is easier for visitors to notice messages when delivered in their own languages. Although Suomenlinna receives a diverse mix of visitors from many nationalities, in order to avoid a wall of text, Finnish, Swedish and English were used as the main languages. Finnish and Swedish are required by law on any signage produced by the Governing Body. Because all three languages use very similar sets of alphabet characters, distinguishing between the languages can be difficult for visitors to recognize the language that is most relevant for them. To make distinguishing between the languages easier, various graphic design tactics were used such as slight adjustments in colour, font weight and size. This helped to make the signs easier to comprehend while still being attractive and balanced.

The Finnish and Swedish translations were provided by the Governing Body and further revised with the help of other designers studying in the same Master’s programme at Aalto.

After a discussion with the Governing Body, Chinese was added as an additional language. Chinese tourists represent a growing number of visitors to Suomenlinna, many of which may not always speak English. However, only select signs incorporate Chinese with some using just the signal word used such as ‘caution’ or ‘danger’ to attract the attention of Chinese visitors. This is a strategy that was identified in recent research done for the national parks in Australia (Moscardo, 2017; Weiler et al., 2015). The rest of the message is conveyed through the use of pictograms to limit the amount of text on the signs. In selecting Chinese words and phrases, two Chinese speaking designers were consulted studying in the same programme at Aalto.

### 6.2.3 Location

Where visitors encounter the awareness campaign message or come across the on-site interventions have been carefully considered. Signs that act as on-site interventions should be located close to where the behaviours occur. Interventions lose their relevancy and their ability to influence behaviour for visitors, the further the message is from the target behaviours (Bradford & McIntyre, 2007; Cialdini, 2003; Laughery & Wogalter, 2006). With correct placement, these signs can also function as a speed bump or as an element that creates friction. Even a small speed bump can cause a person to pause for just long enough to jolt their awareness and consciousness into reflecting before acting, thus shutting off our auto-pilot mindlessness (Halpern, 2016; Thaler & Sunstein, 2009).

## 6.3 Proposal Part 1: Awareness Campaign

The main objective of the awareness campaign is to realign the public perceptions to be more in line with the cultural and historical value of Suomenlinna. The awareness campaign can be delivered through a variety of communication mediums. In this proposal, the campaign consists of a slogan with a logo, sets of posters displaying proper code of conduct behaviour, and a pin badge. These elements create the foundation of the campaign which can always be expanded upon to increase visibility. The campaign message can be easily adopted and expanded across multiple channels such as the official Suomenlinna website and social media, main brochure, and the introductory exhibition displays at the tourist information centre.

### 6.3.1 Slogan and Logo

A slogan was developed to embody the awareness campaign and to work as an element to unify both the awareness campaign and the on-site interventions. In order to shift public perceptions, the slogan needed to remind visitors to recognize the historical value of Suomenlinna while not being overly commanding. The slogan also needed to be simple enough to be translated into English, Finnish, and Swedish. After multiple analytic brainstorming sessions, the final slogan in English was developed. I then presented the English version of the slogan to the Governing Body early in the design proposal process and received approval. The Governing Body provided translations for the slogan for Finnish and Swedish.

The main slogan of the campaign is “Enjoy with care.” It embodies the identity of Suomenlinna and represents a duality between ‘enjoy’ and ‘care.’ Suomenlinna is still a neighbourhood of Helsinki that is meant to be enjoyed by the people since its inception for civilian use (GBS, 1985). It is not a museum or an artifact that cannot be touched. However, at the same time, Suomenlinna is a historical UNESCO site that needs to be cared for and respected as it represents a part of Finnish cultural heritage. Suomenlinna’s historical value needs to be preserved and thus it does need to be treated with unique care compared to other parks that exist in Helsinki. The campaign slogan attempts to summarize this unique duality of still being able to fully enjoy Suomenlinna’s unique offerings but mindfully so.



**SUOMENLINNA**  
**VIERAILE VASTUULLISESTI**  
Njut med omsorg. Enjoy with care.

**Pidä huolta yhteisestä kulttuuriperinnöstämme, ympäristöstä ja omasta turvallisuudestasi.**  
Visa omsorg för vårt gemensamma arv, miljön och din säkerhet.  
Care for our common heritage, the environment, and your safety.

..... Main slogan & logo

..... Secondary part of the slogan addressing the three important aspects of care: heritage value, environment, and the visitor's own safety.

Figure 85 Proposed logo and slogan for the awareness campaign.



**Figure 86** “#EnjoyRespectVenezia” campaign by the City of Venice, prohibiting behaviours with heavy fines.



**Figure 87** “Enjoy & Respect” campaign by the City of Amsterdam also including fines for violations.

Other UNESCO World Heritage Sites such as Venice have chosen to use words such as ‘respect’ over ‘care.’ However, during the ideation process it was discussed that between these two words ‘respect’ was more stern and authoritative, while ‘care’ was softer and more approachable which was more suited towards Suomenlinna’s identity. Venice’s visitor conduct campaign by contrast is more regulatory in nature in which behaviours are being banned outright with fines applied if not obeyed (see Figure 86).

The secondary part of the slogan or tagline is “Care for our common heritage, the environment, and your safety.” This phrase makes use of personal pronouns in “our” and “your” to make it more personalized and relevant for the reader. This personalization is vital because when something is understood as being ours, people tend to instinctively place a greater value upon the message<sup>3</sup> (Ariely, 2010; Halpern, 2016). The goal is that visitors feel a sense of ownership over Suomenlinna as it is part of a greater cultural heritage as well as recognizing that they have ownership and agency over their own safety as well.

The logo is an altered version of Suomenlinna’s original logo, representing a literal shift in how visitors perceive Suomenlinna. This remixing of the logo is primarily targeted towards Helsinki residents who are already familiar with Suomenlinna and who may not have fully internalized the island’s cultural importance. The heart and re-colouring of the logo is to convey a feeling of caring, protecting, and nurturing. The colour is also part of the City of Helsinki’s branding<sup>4</sup> (Helsinki Marketing, 2017).

The slogan and the logo are used in several of the interventions to link the interventions together, creating a more impactful message as a group as well as acting as a reminder to the core messaging of the campaign.

<sup>3</sup> / This is referred to as the endowment effect.

<sup>4</sup> / By pure coincidence, the colour is named “Suomenlinna” in the Helsinki Brand Guideline and it works well with the colour scheme of the Suomenlinna branding.



### 6.3.2 Applying Social Norms

Social norms are the collective behaviour of a particular group that is generally considered acceptable. Our behaviour is biased towards social norms and people typically, for the most part, wish to act similarly to those around us. People's behaviours and motivations can be influenced by what they perceive others do (Cialdini et al., 2006; Halpern, 2016). This peer influence is powerful, and it can affect both our conscious and unconscious mind. At times it can be a deliberate act in which we choose to do what others do, other times we unknowingly follow those around us (Ölander & Thøgersen, 2014).

Applying the concept of social norms as part of the awareness campaign messaging can over time begin to adjust long standing, misaligned perceptions. At the same time, messages using social norms as a strategy need to be crafted carefully. If care is not taken, these messages can backfire and inadvertently normalize the undesired behaviour among visitors (Cialdini, 2003; Halpern, 2016).

To use this strategy of social norms, as part of the awareness campaign, this thesis proposes using pairs of posters with contrasting behaviours. One poster will display the encouraged, desired behaviour with messaging showing that this is what 'most' visitors do to enjoy Suomenlinna with 'care'.<sup>5</sup> Then in the second poster an image of the discouraged, undesired behaviour and messaging showing that this is socially disapproved, while emphasizing that it is a 'few' minority that engage in these behaviours.<sup>6</sup>

#### Poster Pair Example

This example pair (see Figure 88 & 89) displays a footpath created by visitors. These trails have been a source of problems for the Governing Body because the visible footpaths draw visitors to take unofficial paths not meant for heavy traffic. Using social norms, we can influence behaviours by communicating which behaviour is socially approved and disapproved.

The misbehaviour poster on the right depicts a circle with a slash, while the preferred behaviour on the left depicts a check mark. These symbols are universally recognized, easy to understand, and act as visual cues.

In the photos themselves, the desired behaviour has a group of people, to be consistent with the message that it is 'most' people who behave well. Whereas the misbehaviour poster has an image of only one person depicting the undesired behaviour. This implies that the visitor does not want to be part of the minority that acts senselessly. Photos are used as opposed to illustrations or only text because of the ability of photos to convey a feeling of social judgement and that other visitors are aware of your behaviours, further reinforcing a social norm strategy.

In the text, the posters include a brief justification and reasoning as to why the behaviour is being disapproved of. In the example poster, the text reads that it takes three years to repair the damaged grass and that the fort architecture is sensitive than one might think. Research shows that providing reasoning is more effective than just plea for cooperation (Bradford & McIntyre, 2007; Winter, 2006).

<sup>5</sup> / This is a combination of descriptive and prescriptive norms. A message using descriptive norm presents what is commonly being done by others. Prescriptive norm focuses on encouraging positive behaviour.

<sup>6</sup> / This is a combination of injunctive and proscriptive norms. A message using injunctive norm shows what is socially approved and disapproved. Proscriptive norm focuses on discouraging negative behaviour.



SUOMENLINNA  
SVEABORG



Useimmat kävijöistä kunnioittavat Suomenlinnaa.

De flesta njuter av Sveaborg med omsorg.

Most visitors enjoy Suomenlinna with care.



FIN

Ole varovainen ja katso tarkkaan mihin astut. Arkkitehtuuri ja kasvillisuus ovat hauraampia kuin kuvitteletkaan.

Ethän seuraa muutamien välinpitämättömiä kävijöiden nurmikolle tekemiä polkuja. Tallatun nurmikon kasvaminen takaisin voi kestää jopa 3 vuotta.

Voimmeko luottaa sinuun?

SWE

Var försiktig och titta noggrant på vart du ska. Arkitektur och vegetation är mer ömtålig än du föreställer dig.

Följ inte vägarna som gjorts av några likgiltiga besökare på gräsmattan. Det kan ta upp till 3 år för en gräsmatta att växa igen.

Kan vi räkna med dig?

ENG

Please, watch your step and exercise caution. Architecture and vegetation are more sensitive than you think.

Don't trample over the grass by following footpaths made by a few careless visitors. It takes 3 years to repair trampled grass.

Can we count on you?



SUOMENLINNA  
VIERAILE VASTUULLISESTI  
Njut med omsorg. Enjoy with care.

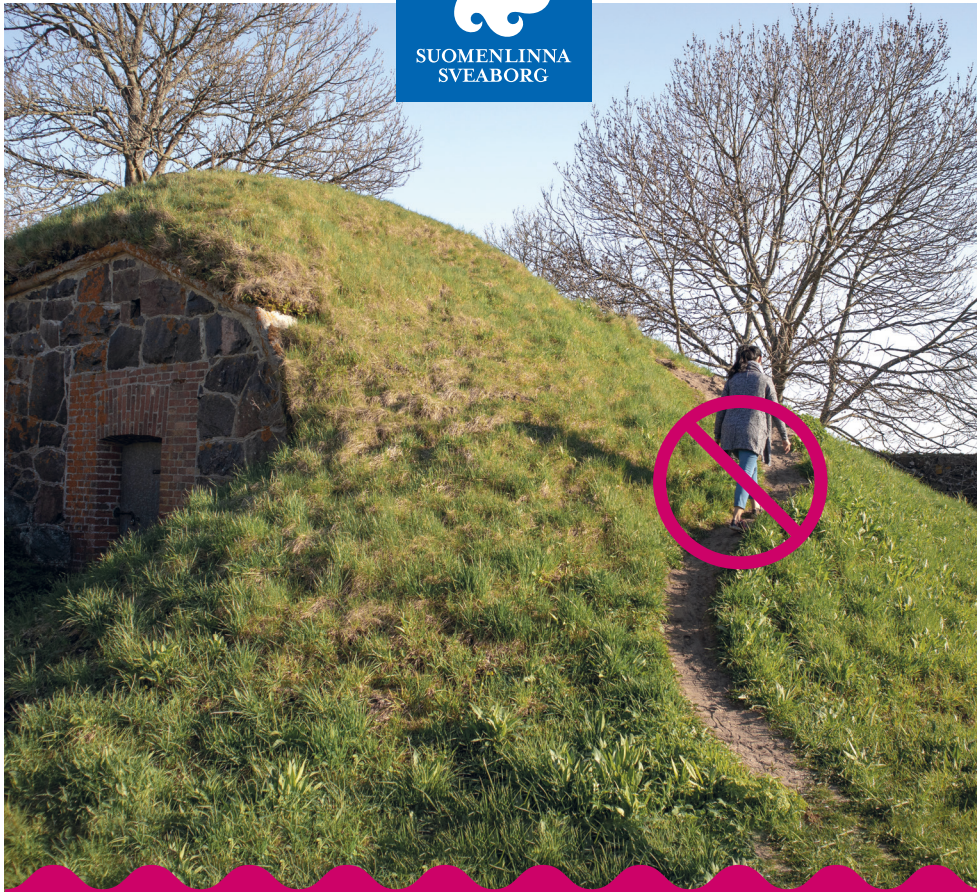
Pidä huolta yhteisestä kulttuuriperinnöstämme, ympäristöstä ja omasta turvallisuudestasi.  
Visa omsorg för vårt gemensamma arv, miljön och din säkerhet.  
Care for our common heritage, the environment, and your safety.







SUOMENLINNA  
SVEABORG



**Ethän ole yksi piittaamattomista.**

Var inte en av de vårdslösa

Don't be the careless few.



FIN

Ole varovainen ja katso tarkkaan mihin astut. Arkkitehtuuri ja kasvillisuus ovat hauraampia kuin kuvitteletkaan.

Ethän seuraa muutamien välinpitämättömien kävijöiden nurmikolle tekemiä polkuja. Tallatun nurmikon kasvaminen takaisin voi kestää jopa 3 vuotta.

Voimmeko luottaa sinuun?



SWE

Var försiktig och titta noggrant på vart du ska. Arkitektur och vegetation är mer ömtålig än du föreställer dig.

Följ inte vägar som gjorts av några likgiltiga besökare på gräsmattan. Det kan ta upp till 3 år för en gräsmatta att växa igen.

Kan vi räkna med dig?

ENG

Please, watch your step and exercise caution. Architecture and vegetation are more sensitive than you think.

Don't trample over the grass by following footpaths made by a few careless visitors. It takes 3 years to repair trampled grass.

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SUOMENLINNA  
VIERAILE VASTUULLISESTI  
Njut med omsorg. Enjoy with care.

Pidä huolta yhteisestä kulttuuriperinnöstämme, ympäristöstä ja omasta turvallisuudestasi.  
Visa omsorg för vårt gemensamma arv, miljön och din säkerhet.  
Care for our common heritage, the environment, and your safety.



Figure 89 Undesired behaviour poster.

The text after the reasoning ends with a question “can we count on you?”. This added question is based on a behavioural insight in which people who are asked on their intentions to behave are more likely to act accordingly to their answer<sup>7</sup> (Thaler & Sunstein, 2009). Tourism research on interpretation research also reveals that using these question statements are more engaging for the reader (Moscardo, 1996).

<sup>7</sup> / This is referred to as mere-measurement effect. In a broader sense, it also acts as implementation intention (Halpern, 2016).

Using this concept and strategy, a template can be formed to expand on to other behaviours. The awareness campaign should include sets of behaviours to illustrate key behaviours that the Governing Body wishes to change. These messages should also be updated and cycled to maintain visitor interest, and also depending on what behaviours require more urgent attention during specific times.

Possible pairings of other sets of behavioural posters could include:

- A happy group of visitors following a path, perhaps on a rampart, lined with the fence versus a single person going over a fence
- A group taking a photo in a safe area versus a selfie in a precarious location
- A responsible picnic by a happy group of people versus a solo drinker on a cliff
- A group of people swimming and having fun at the designated beach area, clearly showing the beach sign versus a solo swimmer diving off a rock while a cruise ship is passing in the background

## Ethical Use of Social Norms

In order to ensure accountability and accuracy of the information depicted, the Governing Body was consulted and had confirmed that the desired behaviour is indeed done by most visitors and the undesired behaviour is done by the minority. Not only is it unethical to misrepresent the truth but the use of social norms is also weakened when the messaging is clearly being untruthful.

## Using “Don’t” Wisely

Research shows that it is more effective to use a proscriptive (language that is prohibitive) social norm statement to discourage undesired behaviours rather than a prescriptive (language that permits) statement<sup>8</sup> (Cialdini et al., 2006; Winter, 2006; Espiner & Weiss, 2010). However, in this research when people are asked which kinds of statements they prefer and what they believe will change their behaviour, they more often choose messages that are more positive and prescriptive. What people say and how they actually behave are not always in agreement. This could be because of ego or that they believe that this is the correct, socially acceptable, response. Because of this, site managers and park administrators have the tendency to rate encouraging messages as more effective and keep using them despite empirical evidence proving that they are less effective (Cialdini et al., 2006; Winter, 2006).

<sup>8</sup> / For example, “please, don’t go off the trail” is proscriptive while “please stay on the trail” is prescriptive.

This tendency also exists within the Governing Body. The staff noted several times that more positive “yes” messages should be used instead. In general, psychology research shows that negatively worded information is observed to receive more attention, be processed more fully, and more memorable than positively worded information (Baumeister et al., 2001). Of course, this doesn’t mean that negative statements should be used everywhere because it can backfire and cause other negative consequences such as negative associations between visitors and Suomenlinna.

When used appropriately however, negative statements can be quite powerful. I understand the desire of the Governing Body to be a welcoming and be a positive host for Suomenlinna. It is indeed valuable to portray a positive image in building a relationship and association with visitors, which in turn affect the visitor's experience and perception of Suomenlinna. But there can be a balanced approach that uses prohibitive language such as "don't" wisely.

By presenting behaviours in the awareness campaign in pairs, the Governing Body can balance prohibitive language, which to some may feel negative, with positive language and images. This can create a better balance and counteract negative associations.

### Pin Badge

This pin badge can be distributed during the awareness campaign. If a Governing Body staff member or a volunteer asks visitors to help the cause as they distribute the pin badges, they can further create a commitment from the visitor. In behavioural insight, these types of objects work as a commitment device for the wearer, and visibly signals the wearer's behaviour and attitude to those around them (Rare & BIT, 2019; Schubert, 2017). These public displays also influence other visitors and can work as a signifier of social status, pride, and imply being part of something larger.

### 6.3.3 Location for the Awareness Campaign

The physical location for these posters can be where the existing poster panels exist at the main ferry pier at Suomenlinna, inside the tourist information centre, as well as by the Suomenlinna Centre entrance. Other possible areas could be inside the ferry to the island and the Kauppatori terminal shelter.

Ideally if resources allow, the location of these posters and the campaign in general should be expanded beyond the boundaries of Suomenlinna. Perhaps in cooperation with HSL or the City of Helsinki, the awareness campaign message could be delivered during the daily commute of Helsinki residents. Unfortunately, it appears that many Helsinki residents fail to plan ahead and do not check any of Suomenlinna's official channels such as their website and social media as reported during a group interview. This remains true even if they may have never visited Suomenlinna.

Visitors need to be reached before they plan their visit. Some Helsinki residents visit with the intention to grill at Suomenlinna and find out too late that it's prohibited upon their arrival. Preferably these messages of conduct would reach local visitors during or before their planning phase.



**Figure 90** Pin badge for the awareness campaign.



## 6.4 Proposal Part 2: On-site Interventions

The main objective of these on-site interventions is to persuade visitors toward the desired behaviours at the point of which the undesired actions can or do occur. Additionally, these interventions work to counteract moments when visitors may have momentary lapses of judgement and are acting automatically as opposed to mindfully. The majority of these interventions are in the form of, but not limited to, improving visitor guidance service using signage.

### 6.4.1 Making the Blue Route More Prominent

In trying to steer visitors away from areas generally not recommended, the Blue Route can be utilized more. The Blue Route is a path that guides visitors to all the main sights across Suomenlinna and is currently marked by a series of signs, as well as being marked in the main visitor map brochure. Promoting the use of the Blue Route can be made more effective by displaying the benefit of following the Blue Route, which is that visitors will be able to efficiently see all the major sights of Suomenlinna.

Furthermore, when visitors find themselves veering off course from the Blue Route, there is no indication of how to return to the Blue Route. It was frequently observed that visitors looked confused and consulted the visitor map in the main brochure to return to the Blue Route. It was obvious that visitors were having difficulty locating their whereabouts on the map. The current signage that is in place marking the Blue Route is shaped in an arrow. This causes confusion to some as it's difficult to know whether you are actually walking on the Blue Route or if the Blue Route is located elsewhere in the direction that the sign is pointing. Getting lost and ending up wandering is one of the most frequently reported issue from the visitors (Heikkilä, 2018; Lempiäinen & Ruoho, 2015; Törrönen, 2017).

For this issue, I propose that an additional marker to be installed to the existing navigation sign post closer to eye level. When visitors are on the Blue Route, the sign would clearly state that “You are on the Blue Route.” When visitors find themselves off the Blue Route, the messaging on the sign would then read “Back to Blue Route & Main Sights,” pointing the visitor in the correct direction.



**Figure 91-92** In the current wayfinding system, the Blue Route is marked with blue plates. However, when a visitor is away from the Blue Route, signs on the route do not indicate how to return to the Blue Route.

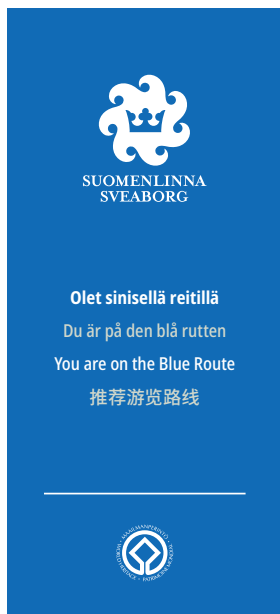


Figure 93-94 Proposed addition to mark the Blue Route more clearly.



Figure 95-96 Proposed addition to guide visitors back to the Blue Route.

## 6.4.2 Redirecting Visitor Flow with a New Sign Type

During the project, two junction points were identified by the Governing Body where most visitors tend to divert away from the Blue Route. The areas beyond these junctions are mostly residential and these sections also lead towards the open prison and the Naval Academy.

In order to redirect the visitor flow in these two junction points, a new sign is designed. (see Figure 101). This sign clearly informs visitors of what to expect in the area beyond the sign. It is possible to use a readily available option for the structure of the sign, which is the existing design of the wooden fence structure made by the Governing Body staff (see Figure 97). The street at this junction is quite wide. By placing two fence structures on either side of the street, the area beyond could evoke a feeling that the area is a fenced-in residential area.

### Location 1: Bridge to Pikku-Mustasaari

The first junction is located close to a bridge where the ferry unloads passengers. The observation research found that visitors are attracted to this bridge because of its scenic views and is a prime location for taking photos. Being in an open sunny location also means it's attractive and draws many visitors because of its proximity to the ferry.

During discussions with the Governing Body, it was expressed that there was a desire to place a sign before the bridge to dissuade visitors from crossing the bridge. However, the research in this project indicates that visitors are still likely to go past the signs to take photos. They may note the sign but are likely to continue walking across the bridge unconsciously as their momentum has carried them already to that point. My suggestion for the intervention to be more effective is to put a duplicate set of signs where the bridge ends, to remind visitors and to act as a speed bump.



**Figure 97** Proposed sign on the existing wooden structure.



**Figure 98-100** Locations for the proposed sign.







**Figure 101** Proposed sign to redirect visitor flow and to clearly inform what to expect in the area beyond the sign.

## Location 2: Near the Military Museum

The second junction is located near the Military Museum. The field observation indicates that, most visitors contemplate which direction to take at this junction. They were often cross-referencing the map and the sign marker several times, while circling the sign post, indicating that finding one's way at this junction is not very intuitive. During interview sessions, the Governing Body staff suspected that the flag and sign boards from the museum draw visitors' interests. It is often observed by the staff that visitors walk towards the museum to check it out, and then keep walking towards the residential area rather than turning back and returning to the main route.

## Further Impact with the Blue Route Marker

To make these signs more effective, an additional navigation sign should be installed nearby with a marker reading "Back to Blue Route," which is discussed in Chapter 6.4.1 in this thesis. In doing so, an alternative behaviour is implied to return to the Blue Route. Showing alternative behaviours is a more effective strategy in behavioural influence (Espiner, 2010; Hayes, 2008; Weiler et al., 2015). If an alternative option as a route is not made known, visitors are left not knowing what action to take next and in which direction to turn. They would be more likely to ignore the sign and walk towards areas that are not recommended.



### 6.4.3 Improving the Residential Area Sign

In this proposal, the existing residential area sign has been redesigned. The pictogram applies social norm concepts within the design. The pictogram represents a family inside a home with unhappy faces because of the invading camera outside. The camera is crossed out with a red circle and a slash, indicating that these behaviours are frowned upon.

These simple visuals that represent smiles and frowns are known to be effective<sup>9</sup> (Halpern, 2016; Thaler & Sunstein, 2009). They signal social norms and indicate socially approved and disapproved behaviours (Schultz et al., 2007; 2018). These simple facial expressions are also universally understood. Illustrations of faces tend to attract our gaze and are highly effective in eliciting an emotional response from the observer (Changizi et al., 2014).

<sup>9</sup> / This is due to what is known as the affect heuristic.

The wording of the sign has also been modified. Applying the same strategies as the awareness campaign, the message applies social norms and contains the word “don’t” to increase its effectiveness. The revised text has changed the wording from “residential area” to “resident’s area,” as well as adding “our” to “privacy,” the sign more explicitly states that you are invading a private area.

The exact location as to where these signs are installed need to be carefully planned. The effectiveness of the location is greatly affected by its environmental context. The optimal location of each residential sign should depend on visitor movement patterns. This is for future studies and is not part of the scope of this thesis.

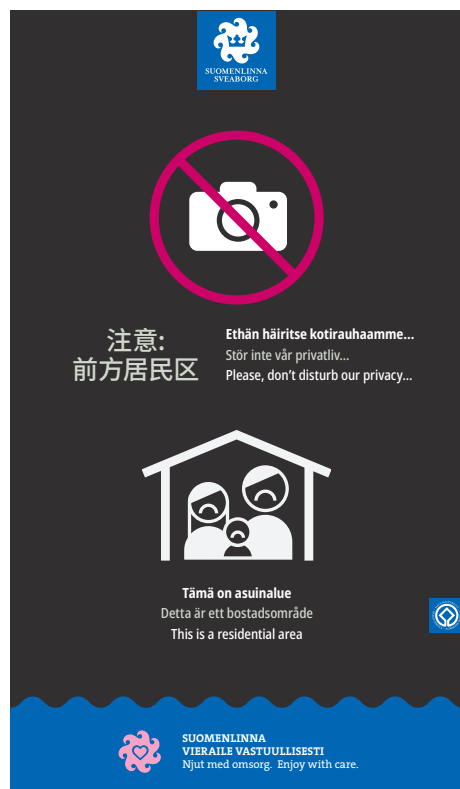


Figure 102 Proposed sign for residential area.



Figure 103 Existing sign for residential area.

#### 6.4.4 Improving Visitor Safety Signs

The set of visitor safety signs that the Governing Body is currently using across Suomenlinna generally consists of these four message types:

- Risk of falling
- Danger
- No passage
- Strictly no entry



Figure 104-108 Existing visitor safety signs at Suomenlinna.

Research on safety warning signs suggests that there are four elements that create an effective warning sign (Wogalter, Conzola, & Smith-Jackson, 2002; Laughery & Wogalter, 2006).

- **A signal word** such as “danger” or “caution,” to attract attention and indicate the level of hazard.
- **The hazard or problem** clearly identified using specific and brief statement or pictogram.
- **The consequence** if exposed to the hazard or what could happen if the safe behaviour is not obeyed, illustrated using an explicit statement or pictogram
- **The correct action to take, an alternative action, or actions to be avoided**, using a specific and explicit statement or pictogram

The existing signs used by the Governing Body only describe the existing hazard in a general sense. As currently presented, the signs are only stating the fact there is a risk and does not appeal to visitors to watch for their own safety. Additionally, the choice of wording used, such as “risk” has a lower perceived level of urgency than “danger,” “caution,” or “warning” (Laughery & Wogalter, 2006).

It is common that people often underestimate danger and are overly optimistic or confident.<sup>10</sup> This rationalizes their desire for immediate pleasure and short-term gain of an experience such as taking a nice photo or having a picnic close to the edge of a cliff.<sup>11</sup> Their perception on danger and the likelihood of a mishap is affected by context and situation, in combination with past experiences and knowledge that can easily be recalled.<sup>12</sup> These common biases can be combated by clearly showing that these perceptions on the level of danger held by the visitor are inaccurate and what the consequences are (Rogers, Lamson, & Rousseau, 2000; Thaler & Sunstein, 2009). This can be done by clearly illustrating the danger and the consequence in an explicit and direct manner rather than abstractly or in a general way, as well as showing what to do and what not to do (Weiler et al., 2015).

<sup>10</sup> / This is known as the discounting or the optimism bias.

<sup>11</sup> / This is known as the present bias.

<sup>12</sup> / This is referred as the availability heuristic or availability bias.

Regarding visitor safety, the area of most concern for the Governing Body is the areas around the ramparts. To address this, the most commonly used sign in the area is a messaging that there is a “risk of falling.” However, many areas where this sign is being used, the risk is not so much that it is possible to fall but it is being used as a way of keeping visitors from harming vegetation through visitor made footpaths or to protect sensitive architecture. But, from the perspective of a visitor, these areas don’t appear to be dangerous because from the exterior they just look like grassy rolling hills. Therefore, based on field research and observations in the rampart area, this thesis proposes to further divide the current safety signs into two types:

- An improved danger sign for the physical safety of the visitor such as falling
- A set of signs to keep the visitor away to protect vegetation or architecture (for detailed description, refer to the next Chapter 6.4.6)

### Improved Danger Warning Sign


This new safety signage uses “danger” as the signal word. In term of perceived level of danger by a reader of a sign, research indicates that “danger” registers the highest and more likely to attract attention than “caution” or “warning” (Laughery & Wogalter, 2006). This danger sign is in the shape of inverted triangle with more red colour, different from other signs included in this proposal for the visitor guidance service. The colour red and the shape of the inverted triangle capture more attention as visual stimuli and are perceived by our brain to be more evocative and cautionary compared to other shapes and colours (Changizi et al., 2014; Yu, Chan, & Salvendy, 2004). Therefore, they are reserved for use only in the danger sign, to be installed in dangerous areas.

Stating explicit and specific statements for safety signs that describe the danger for areas is challenging at Suomenlinna. Depending on the weather and season, the exact nature of the danger can shift. To create a statement that could be broad enough to cover most circumstances, yet still retain some specificity, the statement on the redesigned signs reads “watch your step,” first to call attention to the safe action to be taken. Followed by “fall hazard area,” as the type of danger. Then reasoned with “There are cliff edges hidden by vegetation or snow and are prone to collapse.” This message is based on the study area of high ramparts and cliffs in Kustaanmiekka. This sign wouldn’t work however in other areas such as the tunnels. Safety sign messaging for these areas should be customized accordingly. Finally, the sign ends with “Your safety is your responsibility,” using personal pronouns so visitors personalize the message and eliciting the visitor’s personal responsibility.



**Figure 109**  
Proposed danger sign on a rampart.





## VAARA

**Katso, mihin astut!**  
**Putoamisvaara-alue**

Linnoituksessa on kasvillisuuden peittämiä jyrkänkaita,  
joissa on putoamisvaara

## FARA

**Se var du sätter fötterna!**  
**Område med fallrisk**

Det finns klippkanter som är dolda av vegetation eller snö,  
och vissa kan spricka och kollapsa


## DANGER

**Watch your step!**  
**Fall Hazard Area**


There are cliff edges hidden by vegetation or snow,  
and are prone to collapse

## 危险

**Turvallisuutesi on omalla vastuullasi.**  
Din säkerhet är ditt eget ansvar.  
Your safety is your responsibility.



**SUOMENLINNA**  
**VIERAILE VASTUULLISESTI**  
Njut med omsorg. Enjoy with care.



**Figure 110**  
Proposed design to warn  
of danger.



## 6.4.5 Modular Signs to Protect Architecture and Vegetation

The behaviour of visitors has delayed effects that are not immediately obvious, nor visible to them. A way to influence this type of behaviour is to make the consequence of their action visible and nudge visitors to consciously process the outcome of their actions (Ölander & Thøgersen, 2014; Thaler & Sunstein, 2009).

The awareness campaign, which the visitor may see before arriving at the rampart area, can help to prime visitors and may lead to the setting of good intentions. But since our attention is a scarce resource, a reminder is necessary on site (Sunstein & Reisch, 2019). Good intentions can quickly be forgotten to make room for other immediate emotions and thoughts. This reminder needs to clearly state the specific and recommended behaviour where it matters.

This set of modular signs are designed to remind visitors and connect their actions to the respective future consequences.



Figure 111 First modules stating prohibitive action.



Figure 112 Second modules stating reasoning.

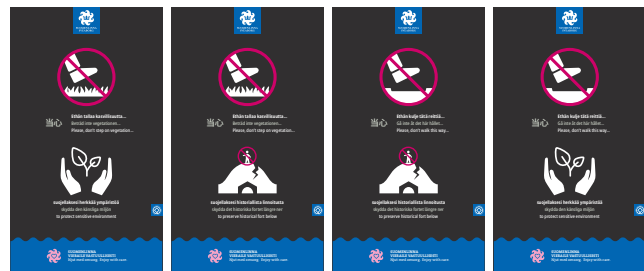


Figure 113 All four possible combinations of the modules.

The first module states the prohibitive action and the second module states the reasoning. “Please don’t walk this way” can be combined with the correct reasoning depending on whether if there is a fort structure below, or if it is to protect sensitive vegetation. For areas that footpaths haven’t formed yet, but visitors should stay off of, the first module would read “Please, don’t step on vegetation.”

These modules in the sign block may have to be reconfigured from time to time. Footpaths that stop being used and recover over time can be adjusted from “Please don’t walk this way” to “Please, don’t step on vegetation” so that the message remains relevant and so that the signs as a whole does not lose effectiveness. This modular approach does require more effort and coordination by the Governing Body. However, as soil erosion is recognized as one of the most serious threats caused by the increasing number of visitors it does, in my opinion, require special attention.

To be effective, these signs should be placed directly in the middle of footpaths or within the line of movement for most visitors (not to the side), to be able to act as a physical barrier and prevent mindless behaviour in which they may walk right past the sign.



Figure 114 Proposed sign discouraging the use of a footpath.



Figure 115 Proposed sign discouraging trampling.

#### 6.4.6 Improving Signs for the Winter Season

Currently, there are two existing signs specifically for winter use. One is used on a fence for an area closed during winter when the conditions become especially icy. The other is to mark paths where there is no winter maintenance. The staff at the Governing Body often observed that people don't obey these signs, especially in areas that state there is "no winter maintenance." Visitor observations during the research phase also indicated that the sign does not work as intended. The intended effect of the sign was to steer visitors away from these routes because of the potentially hazardous and slippery conditions.

Based on observations, currently the existing "no winter maintenance" sign is used for two types of purposes. One is in areas that are still open for visitors but letting the visitors know to do so with caution. The other is in areas that are closed off, often with a temporary fence, because it is determined by the Governing Body staff that it is too dangerous for visitors. Therefore, I propose two different signs to serve each of these purposes.

These signs have been redesigned to provide specific reasons and justifications as to why the route is closed or why it may be dangerous. The signs also include messages clearly stating that they are for "your safety" so that visitors personalize and internalize the message.



Figure 116 Existing sign for "no winter maintenance."



Figure 117-118 Existing sign used in areas that are still open for visitors.



Figure 119-120 The same sign used in areas that are closed off using a temporary fence.

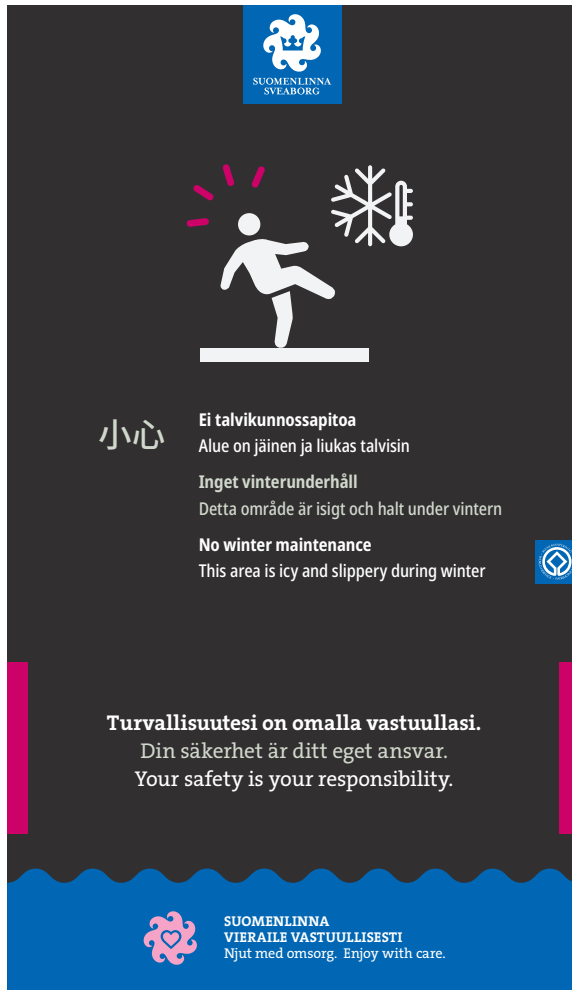


Figure 121-122 Proposed design for the "no winter maintenance" sign.



Figure 123-124 Proposed design for area closed off during winter.



## **6.5 Limitations & Opportunities with Behavioural Interventions**

It should be noted that these design interventions that rely on behavioural insights are not a magic bullet that can cure all problems. Those who intend to maliciously or intentionally engage in high risk activities are rarely affected by these kinds of interventions (Weiler et al., 2015). Furthermore, behavioural research indicates even with the use of on-site interventions, the allure of already present footpaths made by other visitors is very strong. The human tendency to simply follow the crowd can easily override signs. The Governing Body should still monitor regularly areas that may require hard measures such as fencing.

However, when interviewing visitors and residents of Helsinki, it was found that people generally have good intentions and want to respect Suomenlinna, its environment, as well as the residents' privacy. But they often don't know how. The awareness campaign and on-site interventions can help show visitors how to behave so that their conduct is aligned with their intentions. Through the on-site interventions and the awareness campaign, the Governing Body can communicate what behaviours are respectful and disrespectful for Suomenlinna and they can be nudged towards better decisions. These good intentions provide a strong foundation for nudges because these small nudges and behavioural insights are more effective when accompanied with positive attitudes (Lehner, Mont, & Heiskanen, 2016).

## 7.0 PROTOTYPING & FIELD TESTING

### 7.1 Prototyping & Testing: Field Experiments

In August 2019, three prototype tests were carried out at Suomenlinna. The main objective of the tests was to evaluate and validate the design proposal. The tests consisted of evaluating the response and effectiveness of the following:

- Test #1: a set of posters from the awareness campaign proposal
- Test #2: a sign indicating “no visitor service beyond this point”
- Test #3: a sign discouraging the use of a footpath.



Figure 125 The poster pair for test #1.



Figure 126  
The sign for test #2.



Figure 127  
The sign for test #3.

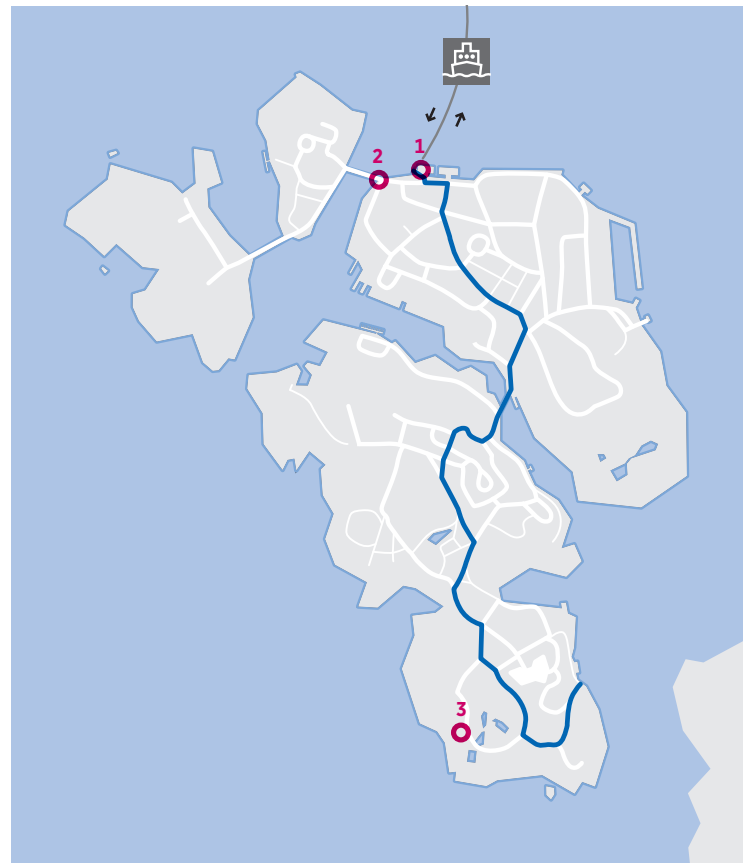


Figure 128 Locations of the field testing.

## **Rationale and Purpose Behind Choosing What to Prototype and Test**

I chose to prototype three design interventions. Due to time and resource limitations, a small sample of prototypes had to represent the most major aspects of the design proposal. The interventions chosen for the field experiments test both the awareness campaign and the on-site guidance interventions. They also address both the conscious and unconscious processes of the mind that affect visitor behaviours. Additionally, they represent various steps spread across the visitor journey to embody a holistic perspective of the overall visitor experience. Balancing a detailed evaluation of specific touchpoints with an evaluation of the overall approach is important from a service design perspective (Stickdorn et al., 2018).

For test #1 and #2, I recruited five people to help me with interviews and observations since these two tests were happening at the same time. Test #3 was done by myself. Interviews in the field with visitors were conducted to better understand general impressions of the prototypes, to note preferences, and to confirm that the images and wording were being understood as the design intended. In addition to these interviews, visitor behaviours were observed noting movement patterns, reactions to the prototypes, and whether visitors were ignoring or being attentive to the prototypes. It was important that these observations were used in addition to asking for feedback to view what the actual behaviours were taking place. Actions can contradict people's intentions and the actual behaviours can differ from what people say or think as being helpful for them to adjust any negative behaviours that could impact a site (Cialdini et al., 2006; Espiner, 2010; Hayes, 2008). This is because "people are often poor at recognizing why they behave as they do" (Griskevicius, Cialdini, & Goldstein, 2008, p. 87).

The prototype testing was also done to communicate to the Governing Body the value of designing with a service design approach and behavioural insights, as well as to demonstrate the value of the testing phase as an important step to arriving at a final design solution.

## 7.2 Planning & Process

### Test #1: A Set of two Posters Comparing Behaviours

The purpose of this test was to evaluate the effectiveness of the messaging in the awareness campaign and to receive feedback from visitors. I was especially interested in the response and reaction from the residents of Helsinki.

The test was conducted on a Saturday on August 17th between the hours of 11:45 and 13:45, in the main quay area of Suomenlinna. This day was selected because this time during the weekend is usually busier than other times based on previous observations, thereby improving the chances of creating a larger sample size. A set of two posters were installed in the existing poster display structure next to the main map of Suomenlinna. This area was chosen, because it is among the first signage visible for visitors arriving by ferry and because many visitors first arriving to the island will begin by referencing the main map display to plan their journey. Using this location improved the likelihood of more visitors noticing the posters and increased the sample size of the test.

The plan was to observe visitor behaviours and to obtain immediate feedback through interviews. For this test, three people were recruited to conduct interviews and observations, two of which are also studying the same Master's Programme at Aalto. Two people were assigned to interviewing visitors. The list of questions for this interview has been included in the Appendix. The questions for this interview were designed to be as simple as possible as many visitors are visiting from abroad and it was possible that interviews could be affected by language limitations. The designers performing the interviews spoke English, Finnish, and Chinese and opened up questioning to be exploratory when opportunities were available to obtain more feedback if possible. A Finnish speaking interviewer was specifically chosen to obtain responses from locals and residents of the Helsinki region. Most visitors were intercepted for a quick interview after they appeared to pay attention or read the posters. The third person kept a tally of the number of visitors who appeared to read the posters based on body language and made general observations.



Figure 129 Interviewing visitors during test #1.



Figure 130 The test posters in the display case.



## Test #2: A Sign Indicating “No Visitor Service Beyond This Point”

This test attempted to measure the effectiveness of redirecting visitor flow away from this junction point. During the project process, the Governing Body expressed concerns surrounding this junction several times, so it was of particular importance. This sign for many visitors is among the first of visitor warning signs that visitors will encounter. The intention of the sign is to warn visitors that visitor services are not available past the bridge at this specific junction. The services that are not available include no washrooms, no information centre, no tourist attractions, and no restaurants or cafes. In effect signalling to visitors that there may not be anything of specific interest past this point. The area beyond the bridge consist mostly of the Naval Academy and residential buildings.

To test the design prototype, a sign was printed and mounted on a foam core board. It was then attached to an existing wooden structure and placed before the bridge to Pikku Mustassari. The sign was placed on the south side, and then moved to the north side after the first hour to observe if the location of the sign had an effect on the effectiveness of the sign.

This test ran simultaneously during test #1 of the posters on the same day. Two people were recruited to help me with the interviews and observations, again studying the same Master’s Programme at Aalto. A designer who can speak Chinese and I conducted interviews using a similar strategy of beginning with a set of simplified questioning then probing further and opening questioning when possible. These questions are included in the appendix. For this test, the languages covered were English, Korean, and Chinese to account for as diverse of a sample group as possible. Finns for this test were interviewed in English as many Finns are able to speak English. The set of questions for this test were simpler and more straightforward than the deeper and more complex issues the behavioural posters presented in test #1. Most visitors were intercepted for a quick interview after they appeared to notice or read the sign.

The third person recruited for this test counted the number of visitors who appeared to notice and read the signs, visitors who continued past the signs across the bridge, and the number of visitors who appeared to change direction due to the sign. General observations were also made noting any behavioural patterns or situations that could be relevant.



**Figure 132-133**  
Interviewing visitors during test #2.



**Figure 131** Sign prototype for test #2.

### Test #3: A Sign Discouraging Use of a Footpath

This test was designed to observe the effectiveness of changing visitor behaviours. This warning sign was chosen because it dealt with soil erosion and the issue of visitor made footpaths that had been identified as one of the main threats caused by the increasing number of visitors (GBS, 2014). During the research process, I also got the impression that this had been a difficult and longstanding issue that the Governing Body has been attempting to address.

This test was conducted on a Sunday on August 18th between the hours of 15:30 and 17:00. The sign was printed and mounted on a foam core board. It was then attached to an existing wooden structure and installed in an area next to a canon that is located at the end of the main rampart walk in Kustaanmiekka. This rampart walk is very popular among visitors and is one of the main attractions. Next to the canon there was a very visible visitor made footpath and environmental erosion caused by trampling. The sign was installed in the middle of the footpath. During the one and a half hours period, I observed and counted the number of people who were noticing or reading the sign based on their body language. I also made a few quick interviews to obtain feedback on the message of the sign that was perceived by visitors.

To compare the effectiveness of the sign, another period of observations was conducted at the same location but this time without any sign at all. This was done on a Saturday on August 24th, between 14:30 and 16:00. I made general observations and kept a tally of the number of people who climbed up the rampart on the visitor made footpath when no sign warned them not to.



Figure 135 Sign prototype for test #3.



Figure 136 Visitors reading the sign during test #3.

## 7.3 Results & Discussions

### Test #1: A Set of two Posters Comparing Behaviours

A total of 17 interview responses were collected from individuals or groups of people. Out of the 17 responses, three responses were from the Helsinki region, four were from visitors coming from Asia, and the rest were from various countries abroad.

When asked to interpret the message of the posters, five of the responses commented on taking or not taking specific actions. While, four responses commented on the broader message of protecting the environment or architecture. The other seven respondents commented on both the specific actions and the broader message. From the 17 responses, only one response was unsure of the message of the poster, though it was noted that there was a language barrier which likely was a factor either in the understanding of the poster or the answers to the interview. Respondents from the Helsinki region were surprised to discover that it was not advisable to walk over top the fort hills. They also noted that they became more aware of the issues created by the visitor made footpaths.

There were some general criticisms and suggestions for improvements gathered from the responses as well. Four responses included comments that the size of the poster and some text were too small. Another four responses commented that the recommended behaviour was not as clear as the discouraged behaviour.

In the two-hour time span, observations noted that a total of 50 people appeared to at least notice the posters, glancing quickly at them. While a separate 31 people appeared to read the posters, taking the time to absorb what was being communicated. These observations were based on the body language of the people viewing the posters.

Although the sample size of this test is extremely small and therefore the effectiveness of the posters is still inconclusive, the small sample does show a positive reaction with a balanced mix of interpretations. Ideally there would be some mix of people between those who interpret the message of the posters to be the specific behaviours to do or not to do, and those who interpret the broader message of conservation. The purpose of the awareness campaign is both to target specific undesired behaviours as well as to promote a general awareness of the need to protect the historical value of Suomenlinna. In my opinion, results that skew towards only the specific messaging or the broader concept alone could potentially indicate that the messaging in one of those areas is weak. A balanced mix is more ideal.

..... BREAKDOWN PER VISITOR TYPES .....			
		Residents of Helsinki region	Tourists from outside Helsinki
Total number of interview responses during test #1	17	3	14
<b>What do you think is the message of the poster?</b>			
A: I don't know / not sure	1	-	1
B: Take or do not take a specific action	5	1	4
C: Interprets a broader concept	4	-	4
Both B and C	7	2	5

**Table 3**  
Interview results of test #1.

..... BREAKDOWN PER VISITOR TYPES .....			
		Residents of Helsinki region	Tourists from outside Helsinki
Total number of interview responses of during test #2	22	6	16
<b>Did you understand the sign?</b>			
Yes	15	6	9
Yes (Misinterpreted as forbidden to enter)	3	-	3
Not sure	1	-	1
Didn't notice the sign	3	-	3
<b>Did the sign affect what direction you decided to take?</b>			
Yes, turn around	5	3	2
No, keep going	17	3	14

**Table 4**  
Interview results of test #2.

### Test #2: A Sign Indicating “No Visitor Service Beyond This Point”

A total of 22 interview responses were collected from individuals or groups of people. Six of the responses were from residents of the Helsinki region, while four were from visitors coming from Asia, and the remaining responses were from various other countries.

The testing confirmed that generally people who noticed or read the sign understand the message. Despite most respondents understanding the message, it didn't have a significant effect in changing the general flow of visitors. An unexpected but important finding was that most visitors that we interviewed were okay with not having visitor services and kept going to the areas beyond the sign. This is a possible indication that if the Governing Body wants to redirect the flow of visitors and have a lesser number of people visiting these areas, another strategy may be needed. However, this sign did matter for visitors with small children. When interviewed, for them having no access to a public toilet was an important factor, so they turned around. This finding indicates that when no services mattered to the visitor, the sign worked.

Another interesting finding was that three out of the 22 respondents misread the sign as the area beyond the bridge being forbidden to enter. One of these respondents commented that they went on to the bridge past the sign for a photo because they saw others taking photos in that area. They then turned back afterwards because they believed the area beyond was forbidden. The sample size is far too small to make conclusions on whether people did not take the time to read the sign to arrive at this misunderstanding, or if the sign itself is not effectively communicating that there are no services beyond the bridge, not that the area is forbidden.

It was noted that for the location of the sign, more people read the sign when it was placed on the north side of the bridge (see Table 5). It may be because for visitors walking towards the bridge, they are more likely to notice the sign when the sign is on their right side. During observations, the number of people counted who were reading the sign almost doubled when the location of the sign changed.

The size and height of the sign structure is something to be considered and tested more. The size of the prototyped sign is considered quite large for the Governing Body's current standards. However, when a group of three or four people are reading the sign it was noted several times by my team that the sign is no longer visible to those passing by.



	BREAKDOWN PER LOCATION			
	Sign on the left side (South side of the bridge)		Sign on the right side (North side of the bridge)	
<b>Total number of people who read the sign during test #2 / duration 2 hours</b>	<b>27</b>	100%	<b>57</b>	100%
Number of people who turned back after reading the sign	6	22%	29	51%
Number of people who kept crossing the bridge	21	78%	28	49%

**Table 5** Observation results of test #2.

### Test #3: A Sign Discouraging Use of a Footpath

During an hour and a half time span, 55 people were counted who noticed or read the sign based on observing their body language. During this period, no one ignored the sign and climbed over the rampart hill or walked over the visitor made footpath. When the same area was observed with no sign installed, over an hour and a half period, 13 people went up the hill on the footpath.

In quick interviews, respondents reported that the sign message is very clear even if they glanced at the sign from a few steps away. For some people, they went up to read the sign because they thought that it was related to some information about the canon that was nearby.

The most interesting finding from this field experiment was that some people who read the sign were also inspecting and taking photos of the fort structure underneath the rampart hill. Possibly indicating that they were understanding the content of the sign and becoming more aware of the effects that their actions have on ongoing conservation efforts.

	With the sign	Without the sign
<b>Number of people who read the sign during test #3 / duration 1.5 hours</b>	<b>55</b>	<b>n/a</b>
Number of people who climbed up the fort hill	0	13

**Table 6**  
Observation results of test #3.

### Limitations

Due to time and resource constraints, the field testing resulted in only a very small sample size. The results from this test therefore cannot be conclusive. This small sample however does show a positive direction. Generally speaking, the messaging in the interventions were being understood and were having the desired effects. Next steps for the testing of the design proposal would be to do much more extensive testing to achieve a larger sample size. Some of the feedback from interviews should also be considered to improve and refine the designs for further rounds of testing before piloting the interventions.



**Figure 137** During test #3, many visitors look at the fort structure underneath after reading the sign which indicates the reasoning as to why visitor should not use the footpath.



**Figure 138** Without the sign, many visitors use the footpath usually to take better photos.

## **8.0 CONCLUSION**

### **8.1 Limitations & Next Steps**

This thesis project investigated the challenges faced by the Governing Body of Suomenlinna in guiding visitor behaviours in order to enhance the safety of visitors, the privacy of Suomenlinna residents, and the preservation of Suomenlinna.

The design solution proposed in this thesis can be implemented with an iterative round of testing and refining the design based on the insights from test results. On August 27th, I presented the thesis project and the design proposal to a group of approximately 20 staff members at the Governing Body. These staff members included those who were encountering the project for the first time, to those who participated at various points during the research process. The research insights and design proposal were warmly received, and it sparked a lively discussion among the staff on how the service elements could be refined and implemented. A weakness pointed out by the staff was that some of the Finnish translation didn't quite match the English wording, which would need to be corrected to arrive closer to implementation.

#### **Limitations**

A limiting aspect of this thesis project was the multiple translations that had to occur from English phrases to Finnish and Swedish. I created the wordings for messages in English and presented them to the Governing Body staff during feedback sessions for their comments and approval. Afterwards, the English version was sent to the Governing Body for translation in Finnish and English. To my knowledge, the translation was done by some of their own staff as well as by an external translation service agency. Especially for the translation agency, they would naturally lack the understanding of the underlying nuance or implied tone that would make the message more effective and persuasive. This issue can be addressed by having a thorough discussion with the translator. For instance, for the Chinese translation, I consulted two designers studying in the same Master's programme at Aalto. In order to come up with the best possible translation, I explained the context where the message would be used, the implied meaning, and the target behaviour. We also discussed other possibilities of how some options may be interpreted differently to some readers. These types of discussions unfortunately were not possible for the Finnish and Swedish translations due to time and resource constraints.

Some translations in Finnish and Swedish that I received after the first submission omitted some key words that were important based behavioural insights when I cross-referenced them using an online translation engine. So, a second round of revisions was done with the help of a staff member at the Governing Body. Even so, in the final presentation at the Governing Body, several staff members recognized that the Finnish version of the campaign message for example didn't quite match the English version and the implied meaning. I see this as a good sign that the Governing Body staff who were present at the final presentation understood the meaning and

intention of the design, and that they started to recognize that these small details in visuals and wordings matter in order to make them more effective and persuasive in guiding visitor behaviours and perceptions. They understood that it is worth spending time discussing and finding more accurate phrasing in Finnish and Swedish to refine the design. As Halpern (2018) emphasizes, an effective application of behavioural insights “requires significant attention to detail” (p. 337).

### **Suggestions for Next Steps towards Implementation**

With the aforementioned limitations in mind, here are some suggestions that the Governing Body can take as next steps towards pilot implementation.

The concept and strategy of the awareness campaign is clearly outlined in this thesis. What is required is more accurate translations of the English messaging with special attention on the slogan that drives the campaign. The images used in the prototype for the set of behaviour posters were sourced from the images that the Governing Body owns as well as through my own limited capacity as a photographer. Ideally these would be re-shot with an understanding of the objectives outlined in this thesis in mind. For a full campaign to be rolled out, there would need to be multiple sets of these behavioural posters. This thesis suggests several examples for these behaviour pairs as mentioned in Chapter 6.3.2 of this thesis. The next most logical step afterwards, would be to adapt the design to make them suitable for distribution via other channels such as the official website and social media platforms. Some evaluation metrics for social media can be developed to measure public reaction to the campaign.

It would be useful to allow for more rounds of testing for the on-site interventions. During this project, only two of the signs were tested due to time and resource constraints. Creating a larger sample and allowing for a more diverse set of conditions to test the signs in, such as the winter season, would help in validating the design as well as allow for further refinement. Continuing the cycle of feedback, observing visitor behaviour patterns, and iterating the design would better ensure that the interventions are having the desired effect. If internal resources are an issue for more field testing for the Governing Body, I hope this thesis demonstrates that field testing can be done quickly and efficiently and can still provide valuable insights for improvements.

Although the solution proposed utilizes insights that have been well researched for effective behavioural change and testing revealed some evidence to support the effectiveness of the interventions, the scope of this thesis project still primarily focused on interventions through types of signage.

Other visitor touchpoints such as the tourist information centre, staff engagements, and digital platforms are included in the service journey overview. However, further improvement for these interventions were not part of the scope for this thesis. Redesigning these touchpoints should be addressed by the Governing Body as an important next step in order to effectively influence and prolong the behavioural change of visitors for Suomenlinna. Delivering a consistent and cohesive message is crucial for the visitor guidance service to support the preservation of Suomenlinna and create a better visitor experience.



## 8.2 Suggestion for Future Research & Design for Suomenlinna

In addition to the research identified in this thesis, another issue emerged that was outside of the scope of this project, which in my view, is important to be addressed by the Governing Body as it relates to visitor behaviours. During this project, I observed that there are some double standards among staff towards the behaviour of visitors and the residents of Suomenlinna. For instance, it was observed that some residents often take shortcuts in areas that are forbidden or not recommended for visitors, and these behaviours were acceptable to some staff because “they live here” or “they know what they are doing”. Residents may feel they have such privileges because they have a better understanding of Suomenlinna and know how to be cautious. However, for visitors, they will not distinguish between staff, residents, or other visitors and will assume that this behaviour is acceptable when visiting Suomenlinna. Visitors generally follow the behaviours of those they see. As another example, residents grilling can have a very inconsistent message for visitors when they are supposed to understand that grilling is strictly forbidden at Suomenlinna. The behaviours of residents influence visitor behaviours much more than they realize.

There could be a project focusing on residents of Suomenlinna to build a shared understanding of their contribution to maintain the historical value of Suomenlinna. Through design, I believe that it is possible to find a way in which residents don't feel like they are losing their privileges, while creating an understanding that they are an important contributor and collaborator in preserving the history of Suomenlinna that they enjoy living in. This project could, at the same time, tackle some of the negative associations and feelings that residents have about the recent increase in tourism at Suomenlinna. Currently, my understanding is that the residents regularly meet with the Governing Body and provide input for management planning. The scope of the engagement can be expanded to co-design and resolve some of the underlying issues and conflicts.

## 8.3 Answering Research Questions

As stated in Chapter 2.1, part of this thesis project's goals was to answer two research questions. Firstly:

- **How can service design be complemented with behavioural science?**  
**Which aspects of service design would benefit from behavioural insights?**

In answering this research question, this thesis demonstrates that in practice service design can benefit from behavioural insights during both problem exploration and the solution development phases.

During the problem exploration phase, behavioural insights can help service designers to make sense of their findings, to analyze insights and provide possible theories. They can help to answer the ‘whys’ of a design problem on a more fundamental level. During the solution development phase, behavioural insights can complement the design opportunities identified from the primary research and provide some grounds for generating design ideas and concepts. Backing design

ideas with findings rooted in scientific research can give designers, in theory, more confidence that their solutions are more effective.

“Theoretical frameworks such as behavioural insights...can help provide a rational structure for the research phase and beyond”  
(Penin, 2018, p. 211)

The need to support and enrich the theories of service design with other fields of research such as behavioural science has been identified (Sangiorgi, 2009). More recently, designing and utilizing toolkits that prescribe a set of methods and strategies to apply behavioural insights have become common (Lockton et al., 2013; Van Lieren et al., 2018). However, there is a lack of published service design cases that links insights from contextual research from users with behavioural insights. For the few published cases that do exist, they are often based on a limited understanding of behavioural insights and of the nudge approach, focusing too heavily on the unconscious side of our mind.

My hope is that the contribution this thesis project provides to the field of service design research is a demonstration on how service design can collaborate with findings from other disciplines and incorporate theoretical frameworks to support the practice of service design. This thesis provides a case example of designing a set of service design interventions informed by behavioural insights.

The second research question that this thesis aimed to answer was:

- **How can service design help the Governing Body of Suomenlinna influence visitor behaviours leading to positive change for Suomenlinna?**

Through this project, my hope was to illustrate how service design can be better understood and utilized for the Governing Body as an organization. Perhaps the most beneficial aspect of a service design approach for the Governing Body has been viewing the issues of visitor behaviour from a holistic and people-centred perspective. Based on the feedback I received from both the mid-review session and the final presentation I gave to the Governing Body, I do feel that there is a much better understanding of how service design can be applied.

*[This project] provided a lot of materials, we don't usually have any time to dig this deep. I think that it's such an important issue. It's not about just the safety and warning signs, but how people behave and there's certain rules for that. I have this confidence that we now have a really great ground to build up interpretation, signage, and all other messages.*

— A senior staff member at the Governing Body

To the credit of the Governing Body, they gave me permission to expand the scope and push beyond just improvements in safety signage. In doing so we can be more confident that an effective strategy is being formed to address problems on a root level and not a surface level. By understanding all the elements within a service and how they connect, a service design approach can provide the context for the behavioural changes that need to shift.

## 8.4 Conclusion

Suomenlinna is one of the most popular visitor destinations in Finland. For the residents of Helsinki, the island has been a beloved summer destination for outdoor recreation since the early 1970s. Since its designation as a UNESCO World Heritage Site in 1991, Suomenlinna has been a must-see attraction for tourists who visit Helsinki. The number of visitors to Suomenlinna reached over one million in 2016 and has been growing steadily each year.

This practice-based thesis started initially with the goal of improving visitor safety through motivation and signage. The research revealed that the safety concern was part of a wider and more systemic issue of visitor behaviours that are not in line with the historical and cultural value of Suomenlinna. The scope of the thesis project expanded, and the design brief was reframed to address undesirable visitor behaviours that adversely affect Suomenlinna. By doing so, negative impacts caused by the increase in tourism were also addressed. This included issues that concern the safety of visitors, environmental erosion and damaging heritage value, as well as invading the privacy of residents and affecting their quality of life.

Using service design as the main approach, the main insight into the problem was that the underlying cause of the undesirable visitor behaviours is a combination of the misaligned perceptions that visitors have about what Suomenlinna is and the ineffectual visitor guidance service provided by the Governing Body. Informed by behavioural studies, this thesis claims that the behavioural change of visitors can be possible by addressing both the conscious and unconscious processes of our minds and by tackling the common biases we have as humans. In order to address both the conscious and unconscious sides, this thesis proposes a two-pronged approach as a design solution, an awareness campaign to realign the perception of visitors as well as improvements to on-site interventions to guide visitors during momentary lapses in judgement during their visit. Based on this core foundation of the design concept, a set of implementable service elements for the awareness campaign and on-site interventions were designed that are feasible for the existing resources of the Governing Body. Then some of these interventions were prototyped and tested at Suomenlinna as field experiments.

This thesis demonstrates that service design informed by behavioural insights can be an effective catalyst for guiding the behaviour of visitors to ensure that the integrity of Suomenlinna and its future tourism can coexist.

## 8.5 Closing Thoughts: Personal Reflection

Through working on this thesis project, I was able to fulfill my desire to further my abilities as a service designer and to execute a project past the concept proposal phase. As much as I've enjoyed studying at Aalto University, one of the unfortunate aspects of the academic schedule is that it does not allow for deeper exploration. In this thesis project I was able to build upon the skills and knowledge that I have acquired throughout the Master's programme in Collaborative and Industrial Design, and work towards a project that I am proud to include as part of my design portfolio.

In not having the support of other design team members as part of this project, I was forced to overcome some personal fears and anxieties. Running a workshop by myself, having to plan and conduct interviews and observations alone, and generating insights from the research without bouncing ideas with a team, can still be a daunting task even though I've done numerous similar projects. This has increased my own confidence in my abilities and skills as a designer.

My deep dive into behavioural insights literature and the numerous texts written about the nudge approach has given me a much better understanding of these concepts that have really taken off recently. I feel that this foundational knowledge will serve me well in my future as I look to transition back into a work environment. Studying these behavioural insights has also led me to better understand my own behaviours and to question my own state of mindfulness. In having a better idea of how the mind can be easily influenced, I've attempted to adjust my own thought patterns and environment to be conducive to a more productive and happier state.

Based on this thesis experience of combining behavioural insights and service design, I have a deeper understanding of the value a multi-disciplinary team can bring. If I were able to redo it, I do wonder had I been able to work with a behavioural scientist, if I would have arrived at the same insights and would be able to get to the design outcome faster. Unfortunately, due to the resource constraints of this project, I was unable to create such a collaboration.

I also learned that with service design being holistic, it can also mean that service design can encompass so many elements and research fields. It was challenging at times to create an understanding of all the different mechanisms that work together as part of a service and knowing where to limit the scope of investigation can be tricky.

I am thankful for the opportunity to have worked with the Governing Body of Suomenlinna. They were receptive to many ideas and were a wonderful collaborator. Before getting this project, finding an organization to collaborate with for a service design thesis was a long and difficult process. Especially as a non-Finnish speaker, I was unsure if I would be able to find an appropriate project. I am grateful to the staff at the Governing Body who provided input and support throughout this project. Visiting Suomenlinna so often also gave me a nice break from my desk, both at home and at school.

I am happy to have taken on this project and I will carry the experiences and learnings with me forward to all my future endeavours in service design.



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## REFERENCES

- Ariely, D. (2010). *Predictably Irrational: The hidden forces that shape our decisions* (Rev. ed.). New York, NY: HarperCollins Publishers.
- Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of General Psychology*, 5(4), 323-370. doi:10.1037/1089-2680.5.4.323
- Bisset, F., & Lockton, D. (2010). Designing motivation or motivating design? Exploring service design, motivation and behavioural change. *Touchpoint: The Journal of Service Design*, 2(1), 15-21. Retrieved from <http://researchonline.rca.ac.uk/1297>
- Bradford, L. E., & McIntyre, N. (2007). Off the beaten track: Messages as a means of reducing social trail use at St. Lawrence Islands National Park. *Journal of Park & Recreation Administration*, 25(1). Retrieved from <https://www.researchgate.net/publication/279514820>
- Changizi, M. A., Brucksch, M., Kotecha, R., McDonald, K., & Rio, K. (2014). Ecological warnings. *Safety Science*, 61, 36-42. doi:10.1016/j.ssci.2013.07.012
- Chipchase, J. (2017). *Field study handbook* (2nd ed.). San Francisco, CA: Field Institute.
- Cialdini, R. B. (2003). Crafting normative messages to protect the environment. *Current Directions in Psychological Science*, 12(4), 105-109. doi:10.1111/1467-8721.01242
- Cialdini, R. B., Demaine, L. J., Sagarin, B. J., Barrett, D. W., Rhoads, K., & Winter, P. L. (2006). Managing social norms for persuasive impact. *Social Influence*, 1(1), 3-15. doi:10.1080/15534510500181459
- City of Helsinki, Executive Office, Urban Research and Statistics. (2018). *Statistical yearbook of Helsinki*. Retrieved from [https://www.hel.fi/hel2/tietokeskus/julkaisut/pdf/19\\_01\\_07\\_tilastollinen\\_vuosikirja2018.pdf](https://www.hel.fi/hel2/tietokeskus/julkaisut/pdf/19_01_07_tilastollinen_vuosikirja2018.pdf)
- Dilnot, C. (2018). Foreword. In L. Penin, *An introduction to service design: Designing the invisible* (pp. 10-11). London, England: Bloomsbury Publishing.
- Espiner, S. R., & Weiss, R. (2010). *Evaluating aspects of hazard awareness, safety message effectiveness and behavioural compliance among visitors to the Glaciers, Westland National Park, New Zealand* (Report prepared for the South Westland Area Office). New Zealand: Department of Conservation. Retrieved from <https://www.doc.govt.nz/Documents/about-doc/role/visitor-research/hazard-awareness-glaciers.pdf>
- Frey, E., & Rogers, T. (2014) Persistence: How treatment effects persist after interventions stop. *Policy Insights from the Behavioral and Brain Sciences*, 1(1), 172-179. doi:10.1177/2372732214550405

- Gigerenzer, G., & Selten, R. (2001). Rethinking Rationality. In *Bounded rationality: The adaptive toolbox* (pp. 1-12). Cambridge, MA: MIT Press.
- Governing Body of Suomenlinna. (1985). *Suomenlinna seminar 85: Final report*. Helsinki, Finland.
- Governing Body of Suomenlinna. (2012). *At fort: Self-analysis report*. Helsinki, Finland.
- Governing Body of Suomenlinna. (2014). *Management plan: Fortress of Suomenlinna — UNESCO World Heritage Site*. Helsinki, Finland.
- Governing Body of Suomenlinna. (2015). *A sustainable tourism strategy for Suomenlinna*. Helsinki, Finland.
- Halpern, D. (2016). *Inside the nudge unit: How small changes can make a big difference* (2nd ed.). London, England: WH Allen.
- Hansen, P. G., & Jespersen, A. M. (2013). Nudge and the manipulation of choice: A framework for the responsible use of the nudge approach to behaviour change in public policy. *European Journal of Risk Regulation*, 4(1), 3-28. doi:10.1017/S1867299X00002762
- Hayes, D. G. (2008). *An investigation of visitor behaviour in recreation and tourism settings: A case study of natural hazard management at the Glaciers, Westland National Park, New Zealand* (Master's thesis, Lincoln University, New Zealand). Retrieved from <https://hdl.handle.net/10182/942>
- Heikkilä, L. (2018). *Suomen maailmanperintökohteiden kävijätutkimushanke 2017-2018: Suomenlinnan kävijätutkimus 2018* [Finland's world heritage site visitor research project 2017-2018: Suomenlinna visitor survey 2018]. Helsinki, Finland: Suomen maailmanperintökohteiden yhdistys ry [Finnish Association of World Heritage Sites].
- Helsinki Marketing. (2017). *Helsingin visuaalisen ilmeen ohjeisto 3.0* [Helsinki brand and visual identity guideline]. Helsinki, Finland. Retrieved from <http://materialbank.myhelsinki.fi/>
- John, P., Sanders, M., & Wang, J. (2014). The use of descriptive norms in public administration: A panacea for improving citizen behaviours? *SSRN Electronic Journal*. Retrieved from <https://ssrn.com/abstract=2514536>
- Kahneman, D. (2003). Maps of bounded rationality: Psychology for behavioural economics. *American Economic Review*, 93(5), 1449-1475. Retrieved from <https://www.jstor.org/stable/3132137>
- Kahneman, D. (2011). *Thinking, fast and slow*. New York, NY: Farrar, Straus and Giroux.

- Kempiak, J., Hollywood, L., Bolan, P., & McMahon-Beattie, U. (2017). The heritage tourist: An understanding of the visitor experience at heritage attractions. *International Journal of Heritage Studies*, 23(4), 375-392. doi:10.1080/13527258.2016.1277776
- Korpi, J., & Ahonen-Rainio, P. (2015). Design guidelines for pictographic symbols: Evidence from symbols designed by students. In *1st ICA European Symposium on Cartography* (pp. 1-19). Vienna, Austria. Retrieved from <https://www.researchgate.net/publication/285197414>
- Laughery, K. R., & Wogalter, M. S. (2006). Designing effective warnings. *Reviews of Human Factors and Ergonomics*, 2(1), 241-271. doi:10.1177/1557234X0600200109
- Lehner, M., Mont, O., & Heiskanen, E. (2016). Nudging — A promising tool for sustainable consumption behaviour? *Journal of Cleaner Production*, 134, 166-177. doi:10.1016/j.jclepro.2015.11.086
- Lempiäinen, E., & Ruoho, S. (2015). *Suomenlinnan kävijätutkimus 2014* [Suomenlinna visitor Survey 2014] (Bachelor's thesis, Haaga-Helia University of Applied Sciences).
- Manzini, E. (2011). Introduction. In A. Meroni & D. Sangiorgi, *Design for services* (pp. 1-7). Surrey, England: Gower Publishing. Retrieved from <https://ebookcentral.proquest.com>
- Moscardo, G. (1996). Mindful visitors: Heritage and tourism. *Annals of Tourism Research*, 23(2), 376-397. doi:10.1016/0160-7383(95)00068-2
- Moscardo, G. (2014). Interpretation and tourism: Holy grail or emperor's robes? *International Journal of Culture, Tourism and Hospitality Research*, 8(4), 462-476. doi:1108/IJCTHR-08-2014-0071
- Moscardo, G. (2017). *Guidelines for managing mainland Chinese tourists to national parks*. Townsville, Australia: James Cook University. Retrieved from <https://researchonline.jcu.edu.au/51786/>
- Nesta & IDEO. (2017). *Designing for public services: A practical guide*. Retrieved from <https://www.nesta.org.uk/toolkit/designing-for-public-services-a-practical-guide/>
- Ölander, F., & Thøgersen, J. (2014). Informing versus nudging in environmental policy. *Journal of Consumer Policy*, 37(3), 341-356. doi:10.1007/s10603-014-9256-2
- Pedersen, A. (2002). *Managing tourism at world heritage sites: A practical manual for world heritage site managers*. Paris, France: UNESCO World Heritage Centre. Retrieved from <http://whc.unesco.org/en/series/1/>



- Penin, L. (2018). *An introduction to service design: Designing the invisible*. London, England: Bloomsbury Publishing.
- Puczkó, L. (2006). Interpretation in cultural tourism. In M. K. Smith & M. Robinson (Eds.), *Cultural tourism in a changing world: Politics, participation and (re)presentation*. (pp. 227-243). Clevedon, UK: Channel View Publications.
- Rare & Behavioral Insights Team (2019). *Behavior change for nature: A behavioral science toolkit for practitioners*. Arlington, VA: Rare. Retrieved from <https://www.bi.team/publications/behavior-change-for-nature-a-behavioral-science-toolkit-for-practitioners/>
- Rogers, W. A., Lamson, N., & Rousseau, G. K. (2000). Warning research: An integrative perspective. *Human Factors*, 42(1), 102-139. doi:10.1518/001872000779656624
- Sangiorgi, D., & Prendiville, A. (Eds.). (2017). *Designing for service: Key issues and new directions*. London, England: Bloomsbury Publishing.
- Saunders, R., Weiler, B., Scherrer, P., & Zeppel, H. (2019). Best practice principles for communicating safety messages in national parks. *Journal of Outdoor Recreation and Tourism*, 25, 132-142. doi:10.1016/j.jort.2018.01.006
- Schubert, C. (2017). Green nudges: Do they work? Are they ethical? *Ecological Economics*, 132, 329-342. doi:10.1016/j.ecolecon.2016.11.009
- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The constructive, destructive, and reconstructive power of social norms. *Psychological Science*, 18(5), 429-434. doi:10.1111/j.1467-9280.2007.01917.x
- Schultz, P. W., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2018). The constructive, destructive, and reconstructive power of social norms: Reprise. *Perspectives on Psychological Science*, 13(2), 249-254. doi:10.1177/1745691617693325
- Stickdorn, M., & Schneider, J. (2011). *This is service design thinking: Basics, tools, cases*. Amsterdam, The Netherlands: BIS Publishers.
- Stickdorn, M., Hormess, M., Lawrence, A., & Schneider, J. (2018). *This is service design doing: Applying service design thinking in the real world: A practitioner's handbook*. Sebastopol, CA: O'Reilly Media.
- Sunstein, C. R. (2015). Nudging and choice architecture: Ethical considerations (Harvard John M. Olin Discussion Paper Series Discussion Paper No. 809). *Forthcoming Yale Journal on Regulation*. Retrieved from <https://dash.harvard.edu/handle/1/17915544>
- Sunstein, C. R., & Reisch, L. A. (2019). *Trusting nudges: Towards a bill of rights for nudging*. Abingdon, England: Routledge.

- Thaler, R. H. (2015). *Misbehaving: The making of behavioral economics*. New York, NY: WW Norton & Company.
- Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness* (Rev. ed.). London, England: Penguin Books.
- Törrönen, V. (2017). *Interpretaatioselvitys* [Interpretation plan]. Helsinki, Finland: The Governing Body of Suomenlinna.
- UNESCO. (n.d.). Fortress of Suomenlinna. Retrieved from <https://whc.unesco.org/en/list/583/>
- Van Lieren, A., Calabretta, G., & Schoormans, J. (2018). Rational overrides: Influence behaviour beyond nudging. In *Design Research Society 2018 conference* (pp. 2163-2176). Limerick, Ireland. Retrieved from <https://www.researchgate.net/publication/326111797>
- Viljamaa, A. (2018, July 25). Suomenlinnaan lisättiin varoituskylttejä sen jälkeen kun lapsi putosi yhdeltä sen muurilta [Warning signs were added at Suomenlinna after a child fell from one of its walls]. *Helsingin Sanomat*. Retrieved from <https://www.hs.fi/kaupunki/art-2000005768695.html>
- Weiler, B., Zeppel, H., Saunders, R., & Scherrer, P. (2015). *A review of safety signage for Queensland Parks and Wildlife Service: Report 1 (Literature review)*. Coolangatta, Australia: School of Business and Tourism, Southern Cross University. Retrieved from [https://epubs.scu.edu.au/cgi/viewcontent.cgi?article=1469&context=bus\\_tourism\\_pubs](https://epubs.scu.edu.au/cgi/viewcontent.cgi?article=1469&context=bus_tourism_pubs)
- Winter, P. L. (2006). The impact of normative message types on off-trail hiking. *Journal of Interpretation Research*, 11(1), 35-52. Retrieved from <https://www.fs.usda.gov/treearch/pubs/48736>
- Wogalter, M. S., Conzola, V. C., & Smith-Jackson, T. L. (2002). Research-based guidelines for warning design and evaluation. *Applied Ergonomics*, 33(3), 219-230. doi:10.1016/S0003-6870(02)00009-1
- YLE Helsinki. (2010, April 28). Suomenlinnan valleilla kulkemista on rajoitettu [Access to ramparts at Suomenlinna is restricted]. *YLE*. Retrieved from <https://yle.fi/uutiset/3-5552459>
- Yu, R. F., Chan, A. H., & Salvendy, G. (2004). Chinese perceptions of implied hazard for signal words and surround shapes. *Human Factors and Ergonomics in Manufacturing & Service Industries*, 14(1), 69-80. doi:10.1002/hfm.10048

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## Appendix A. Interview questions for field test #1

Team Poster

Language used:

☐ Finnish ☐ English ☐ Mandarin ☐ Other

**What 3 words would you use to describe how you feel about Suomenlinna?**

**What do you think is the message of the poster?**

- ☐ I don't know / am not sure
- ☐ Take or do not take a specific action  
(e.g. don't walk on hills/forts, don't take footpaths, don't step on grass)
- ☐ Interprets a broader concept  
(e.g. need to protect environment/architecture, see importance/value of history, culture, any broader ideas)
- ☐ Other

**What 3 words would you use to describe how you feel about this poster?**

**Are you here for the first time or have you visited before?**

- ☐ First Time
- ☐ Visited before

**Do you live in the Helsinki region?**

- ☐ Yes, live in the Helsinki region
- ☐ No, tourist / visiting from outside of Helsinki region

**Why did you visit Suomenlinna?**

- ☐ Sightseeing
- ☐ Leisure (e.g. picnic)
- ☐ Live / work at Suomenlinna or Visiting someone living in Suomenlinna
- ☐ Event
- ☐ Other

## Appendix B. Interview questions for field test #2

Team Signage

Language used:

☐ Finnish    ☐ English    ☐ Mandarin    ☐ Other

**Did you notice the sign?**

**Do you understand the sign?**

**Did the sign affect what direction you decided to take?**

- ☐ Turn around
- ☐ Keep going past the sign / Cross the bridge
- ☐ Other

**Are you here for the first time or have you visited before?**

- ☐ First Time
- ☐ Visited before

**Do you live in the Helsinki region?**

- ☐ Yes, live in the Helsinki region
- ☐ No, tourist / visiting from outside of Helsinki region

**Why did you visit Suomenlinna?**

- ☐ Sightseeing
- ☐ Leisure (e.g. picnic)
- ☐ Live / work at Suomenlinna or Visiting someone living in Suomenlinna
- ☐ Event
- ☐ Other

